

# MZ-E40

## SERVICE MANUAL

*US Model  
Canadian Model  
AEP Model  
UK Model  
E Model  
Australian Model*



Model Name Using Similar Mechanism	NEW
Mechanism Type	MT-MZE40-109
Optical Pick-Up Name	KMS-240A/J2N

### SPECIFICATIONS

#### System

Audio playing system

MiniDisc digital audio system

**Laser diode properties**

Material: GaAlAs

Wavelength:  $\lambda = 780 \text{ nm}$

Emission duration: continuous

Laser output: less than  $44.6 \mu\text{W}$

(This output is the value measured at a distance of 200 mm from the lens surface on the optical pick-up block.)

**Revolutions**

400 rpm to 900 rpm (CLV)

**Error correction**

Advanced Cross Interleave Reed Solomon Code (ACIRC)

**Sampling frequency**

44.1 kHz

**Coding**

Adaptive TRansform Acoustic Coding (ATRAC)

**Modulation system**

EFM (Eight to Fourteen Modulation)

**Number of channels**

2 stereo channels

1 monaural channel

**Frequency response**

20 to 20,000 Hz  $\pm 3 \text{ dB}$

**Wow and Flutter**

Below measurable limit

**Outputs**

Headphones: stereo mini-jack, maximum output level 15 mW + 15 mW, load impedance 16 ohm

#### General

**Power requirements**

Sony AC Power Adaptor (supplied) connected at the DC IN 4.5 V jack: 220–230V AC, 50/60 Hz (AEP model), 120 V AC, 60 Hz (US, Canadian model), 230–240 V AC, 50 Hz (UK model), 240V AC, 50Hz (Australian model), 100–240V AC, 50/60 Hz (E model)

Two size AA (LR6) batteries (not supplied)

Nickel metal hydride rechargeable battery BP-DM20 (not supplied)

**Battery operation time**

See "Using on dry batteries"

**Dimensions**

Approx. 129.9  $\times$  24.5  $\times$  79.4 mm (w/h/d) (5  $\frac{1}{8}$   $\times$  1  $\times$  3  $\frac{1}{4}$  in.)

**Mass**

Approx. 170 g (6.0 oz) the player only

Approx. 260 g (9.2 oz) incl. a premastered MD, headphones, and two Sony alkaline LR6 (SG) batteries

**Supplied accessories**

AC power adaptor (1)

Headphones (1)

Carrying case (1)

Ear pad (2)

Design and specifications are subject to change without notice.



**PORTABLE MINIDISK PLAYER**  
**SONY®**



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## SERVICE NOTES

### Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 °C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

### Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

### CAUTION

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

CLASS 1 LASER PRODUCT  
LUOKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

This MiniDisc player is classified as a CLASS 1 LASER product.  
The CLASS 1 LASER PRODUCT label is located on the bottom exterior.

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\triangle$  OR DOTTED LINE WITH MARK  $\triangle$  ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

### ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE  $\triangle$  SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COMPOSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.



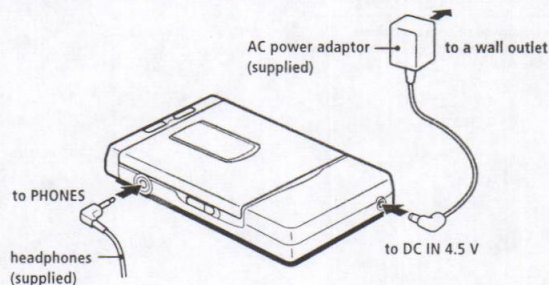
This section is extracted from  
instruction manual.

## SECTION 1 GENERAL

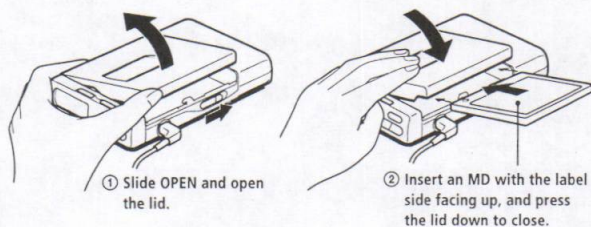
# Playing an MD right away!

If you want to play an MD right now, choose to use your player on house current. Other choices are dry batteries and rechargeable batteries (see "Power sources"). The player automatically switches to play the stereo or monaural sound according to the recorded sound.

### 1 Make connections.



### 2 Insert an MD.



### 3 Play an MD.

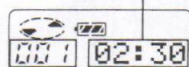


To	Press
Find the beginning of the current track	◀◀
Find the beginning of the next track	▶▶
Go backwards while playing <sup>1)</sup>	keep pressing ◀◀ side
Go forward while playing <sup>1)</sup>	keep pressing ▶▶ side
Remove the MD	■ STOP/CHARGE and open the lid. <sup>2)</sup>

If the play does not start  
Make sure the player is not locked. See "To lock the controls."

#### Display window while playing back

Track name<sup>2)</sup> or elapsed time of the track being played



Track number

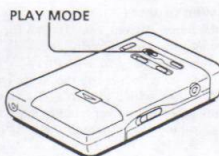
1) Once you open the lid, the point to start play will change to the beginning of the first track.

2) Appears only with MDs that have been electronically labeled.

### ► Various ways of playback

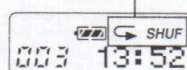
#### Playing tracks repeatedly

You can play tracks repeatedly in three ways—all repeat, single repeat, and shuffle repeat.



Press PLAY MODE while the player is playing an MD. Each time you press PLAY MODE, the play mode indication changes as follows.

#### Play mode indication



"(none)" (normal play)  
All the tracks are played once.

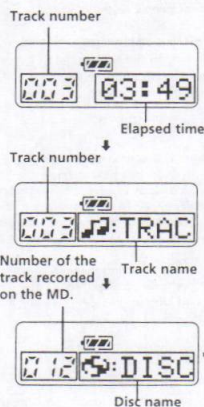
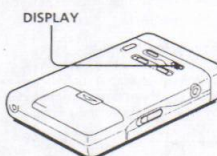
◀◀ (all repeat)  
All the tracks are played repeatedly.

◀ 1" (single repeat)  
A single track is played repeatedly.

◀ SHUF (shuffle repeat)  
All the tracks are played repeatedly in random order.

### Tips on playback

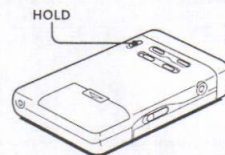
**To know the track name and time**  
Press DISPLAY while the player is playing an MD. Each time you press DISPLAY, the display changes as follows.



Note  
Disc and track names appear only with MDs that have been electronically labeled.

### To lock the controls

To prevent the buttons from being accidentally operated when you carry the player, use this function.



Slide HOLD in the direction of the →. On the player, slide HOLD to lock the controls of the player.

### To emphasize bass (MEGA BASS feature)

The MEGA BASS feature intensifies low frequency sound for richer quality audio reproduction.



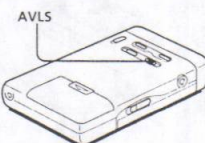
Slide MEGA BASS. Choose 1 (slight effect) or 2 (strong effect). To cancel the effect, set MEGA BASS to 0.

### Note

If the sound is distorted when emphasizing bass, turn down the volume.

### To protect your hearing (AVLS)

The AVLS (Automatic Volume Limiter System) function keeps down the maximum volume to prevent excessive sound from harming your ears.



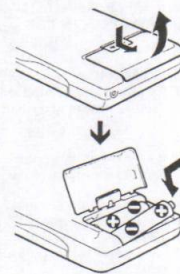
Set AVLS to LIMIT. The volume is kept at a moderate level, even if you try to turn the volume above the limited level.

### ► Power sources

You can use the player on house current, dry batteries, a nickel metal hydride rechargeable battery.

### Using on dry batteries

Install two size AA (LR6) alkaline batteries (not supplied), and close the lid.



### When to replace or charge the batteries

You can check the battery condition with the battery indication displayed while using the player.

- Used batteries
- Weak batteries. Replace all the batteries
- The batteries have gone out. "LoBATT" flashes in the display, and the power goes off.



#### Battery life\*

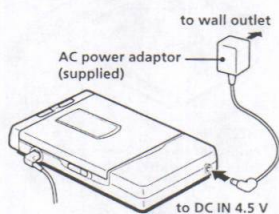
Batteries	Playback
Two size AA (LR6) alkaline batteries	Approx. 4 hours
Nickel metal hydride rechargeable battery (BP-DM20)	Approx. 3 hours

\* The battery life may be shorter due to operating conditions and the temperature of the location.

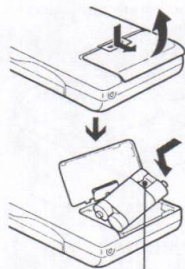
### Using on a nickel metal hydride rechargeable battery

Before using the rechargeable battery BP-DM20 (not supplied) for the first time, charge it.

- 1 Connect the supplied AC power adaptor.



- 2 Insert the rechargeable battery, and close the lid.



The projection on the battery comes on the right.

- 3 Press ■STOP/CHARGE on the player. "Charge" flashes and the battery indication appears in the display and charging starts. When charging is completed, "Charge" and the battery indication go out. A completely discharged battery takes about 3 hours to charge fully. To stop charging before the battery is fully charged, press ■STOP/CHARGE.

- 4 Disconnect the AC power adaptor. As long as the player is connected to the AC power, the power will be supplied from the AC source instead of the battery.

#### Notes

- Be sure to use the supplied AC power adaptor.
- Charging time may vary depending on the battery condition.
- When you use the battery for the first time or after a long period of disuse, the battery life may be shorter. In this case, charge and discharge the battery several times. The battery life will be restored.
- If the rechargeable battery capacity becomes half the normal life, replace it with a new one.

### ►Additional information

#### Precautions

##### On safety

- Do not put any foreign objects in the DC IN 4.5 V jack.

##### On power sources

- Use the house current, two size AA (R6) batteries, nickel metal hydride rechargeable battery, or car battery.
- For use in your house: Use the AC power adaptor supplied with this player. Do not use any other AC power adaptor since it may cause the player to malfunction.



Polarity of the plug

- The player is not disconnected from the AC power source (mains) as long as it is connected to the wall outlet, even if the player itself has been turned off.
- If you are not going to use this player for a long time, be sure to disconnect the power supply (AC power adaptor, dry batteries, rechargeable batteries, or car battery cord). To remove the AC power adaptor from the wall outlet, grasp the adaptor plug itself; never pull the cord.
- For use in the car: Use the CPA-9 car connecting pack (not supplied).

##### On heat build-up

- Heat may build up in the player if it is used for an extended period of time. In this case, leave the player to cool down.

##### On installation

- Never use the player where it will be subjected to extremes of light, temperature, moisture or vibration.
- Never wrap the player in anything when it is being used with the AC power adaptor. Heat build-up in the player may cause malfunction or injury.

##### On the headphones

###### Road safety

Do not use headphones while driving, cycling, or operating any motorized vehicle. It may create a traffic hazard and is illegal in many areas. It can also be potentially dangerous to play your player at high volume while walking, especially at pedestrian crossings. You should exercise extreme caution or discontinue use in potentially hazardous situations.

###### Preventing hearing damage

Avoid using headphones at high volume. Hearing experts advise against continuous, loud and extended play. If you experience a ringing in your ears, reduce the volume or discontinue use.

###### Caring for others

Keep the volume at a moderate level. This will allow you to hear outside sounds and to be considerate of the people around you.

##### On the MiniDisc cartridge

- Do not break open the shutter.
- Do not place the cartridge where it will be subject to light, temperature, moisture or dust.

##### On cleaning

- Clean the player casing with a soft cloth slightly moistened with water or a mild detergent solution. Do not use any type of abrasive pad, scouring powder or solvent such as alcohol or benzene as it may mar the finish of the casing.
- Wipe the disc cartridge with a dry cloth to remove dirt.
- Dust on the lens may prevent the unit from operating properly. Be sure to close the disc compartment lid after inserting and ejecting an MD.

##### Notes on the batteries

Incorrect battery usage may lead to leakage of battery fluid or bursting batteries. To prevent such accidents, observe the following precautions:

- Install the + and - poles of the batteries correctly.
- Do not install new and used batteries or different kinds of batteries together.
- Do not try to recharge the batteries.
- When the player is not to be used for a long time, be sure to remove the batteries.
- If a battery leak should develop, carefully and thoroughly wipe away battery fluid from the battery compartment before inserting new ones.

#### Note on mechanical noise

The player gives out mechanical noise while operating, which is caused by the power-saving system of the player and it is not a trouble.

#### For the customers in Canada

##### DISPOSAL OF NICKEL METAL HYDRIDE BATTERY.

##### NICKEL METAL HYDRIDE BATTERY. DISPOSE OF PROPERLY.

You can return your unwanted nickel metal hydride batteries to your nearest Sony Service Center.

**Note:** In some areas the disposal of nickel metal hydride batteries in household or business trash may be prohibited.

For the Sony Service Center nearest you call 1-800-222-SONY (Canada only)

**Caution:** Do not handle damaged or leaking nickel metal hydride battery.

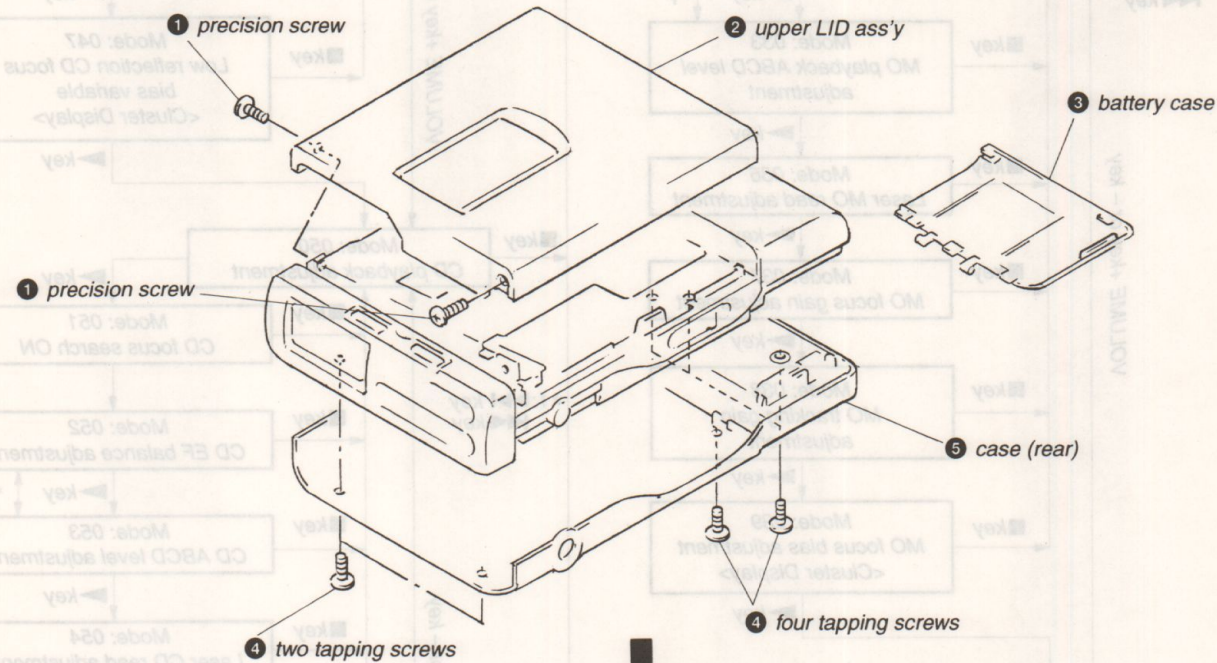
If you have any questions or problems concerning your recorder, please consult your nearest Sony dealer.



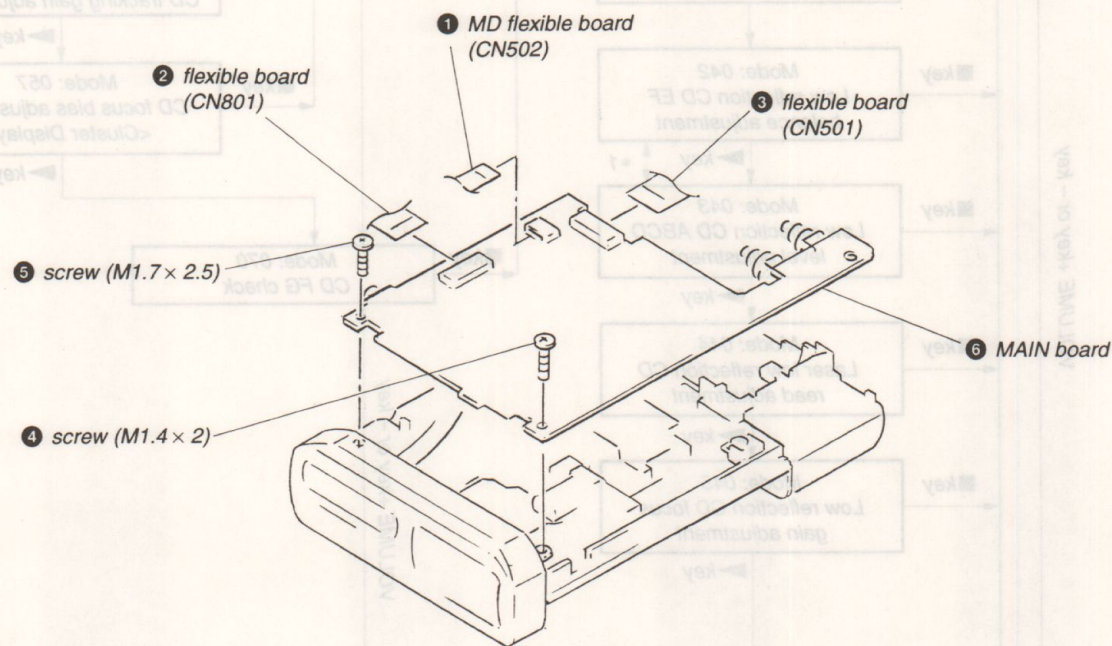
## SECTION 2 DISASSEMBLY

**Note:** Follow the disassembly procedure in the numerical order given.

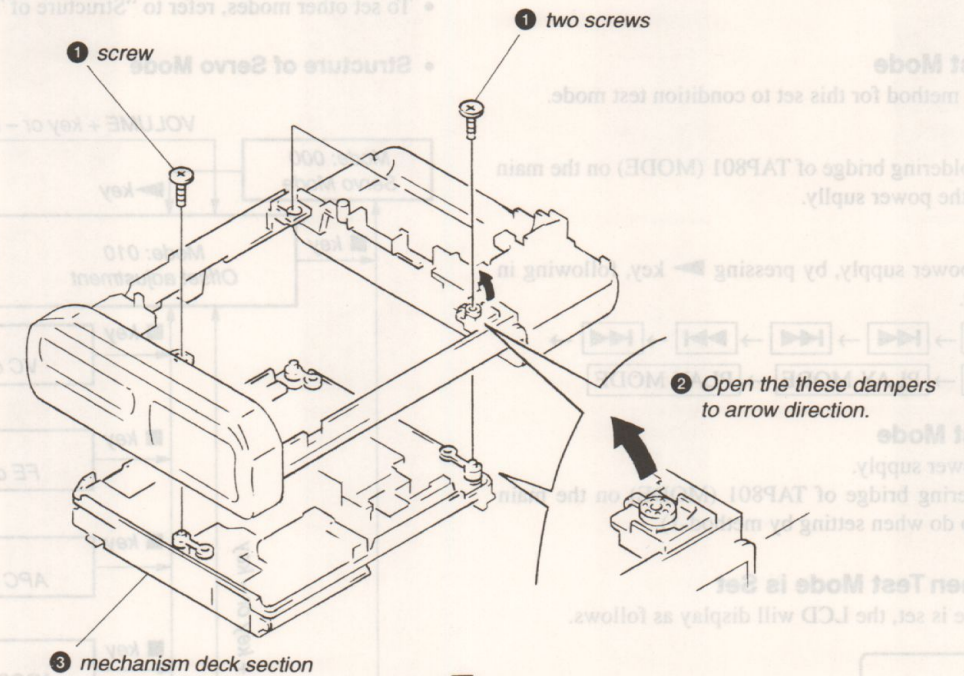
### UPPER LID ASS'Y, CASE (REAR)



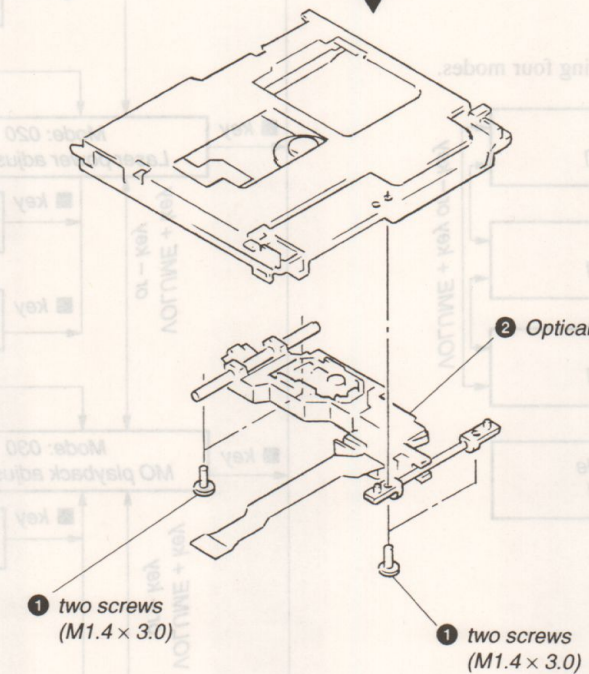
### MAIN BOARD



### MECHANISM DECK SECTION



### OPTICAL PICK-UP



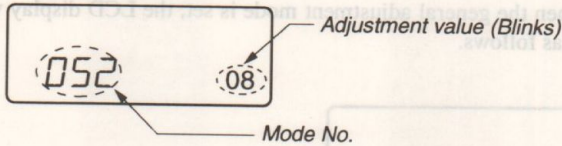




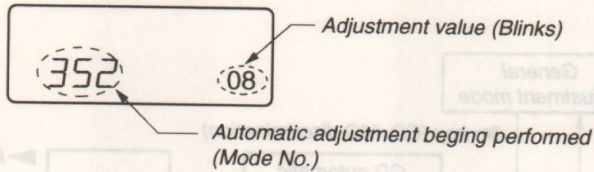


## • Adjusting Method

- When the adjustment modes are set according to "Structure of Servo Mode", the last two digits of the mode number and the adjustment value written in the EEPROM will be displayed blinking.

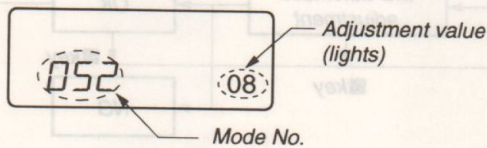


- When the PLAY MODE key is pressed, the following will be displayed and adjustments will be performed automatically.

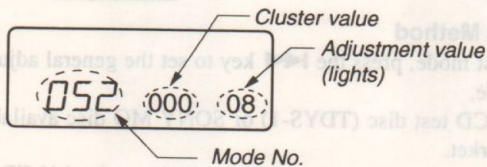


**Note)** The adjustment value can be changed as desired using the VOLUME + and - keys, but try to avoid this as much as possible.

- After the adjustments are completed, the item is displayed again and the adjustment value that was blinking lights up.



## • Cluster display



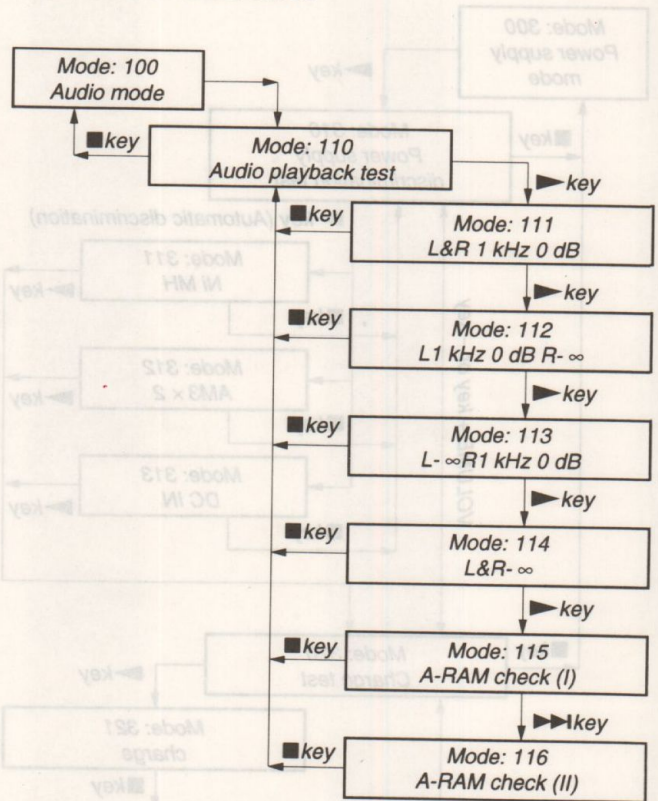
- Nothing is performed at mode numbers 016 and 022.

No.	Mode No.	Adjustment
1	022	CD EF balance adjustment
2	023	CD ABCD level adjustment
3	025	CD focus gain adjustment
4	026	CD tracking gain adjustment
5	027	CD focus bias adjustment

## Audio Mode

- Set the test mode, press the ►► key, and set the audio mode using the VOLUME + and - keys.
- To set other modes, refer to "Structure of Test Mode".

## • Structure of Audio Mode



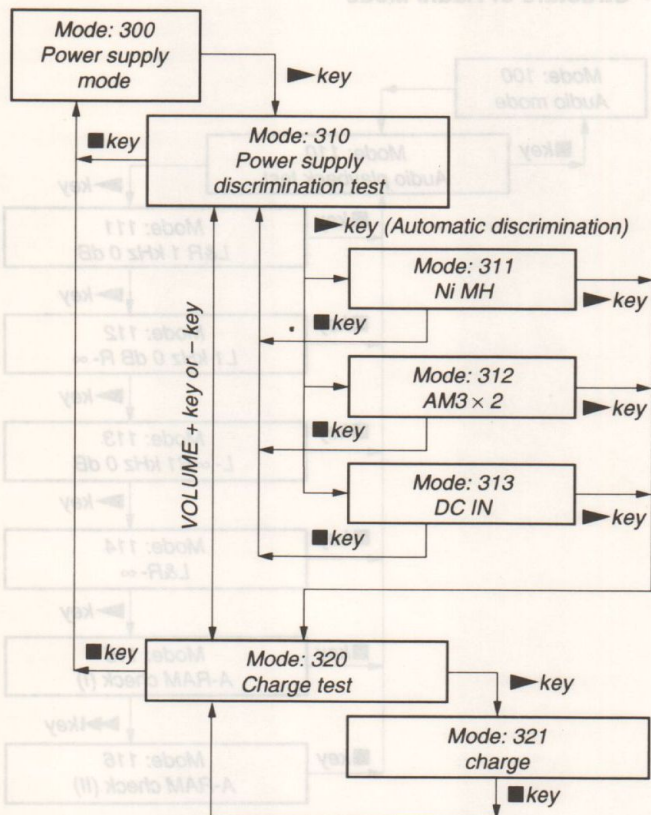
- When the PLAY MODE key is pressed at mode numbers 111 to 114, the sound can be stopped.
  - When the VOLUME + and - keys are pressed at mode numbers 111 to 114 the volume of the headphone output will increase/decrease.
- When the ◀◀ key or ▶▶ key is pressed, the volume of the headphone output will become maximum/minimum.



## Power Supply Mode

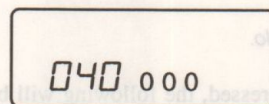
- Set the test mode, press the ► key, and set the power supply mode using the VOLUME + and – keys.
- To set other modes, refer to “Structure of Test Mode”.

### • Structure of Power Supply Mode

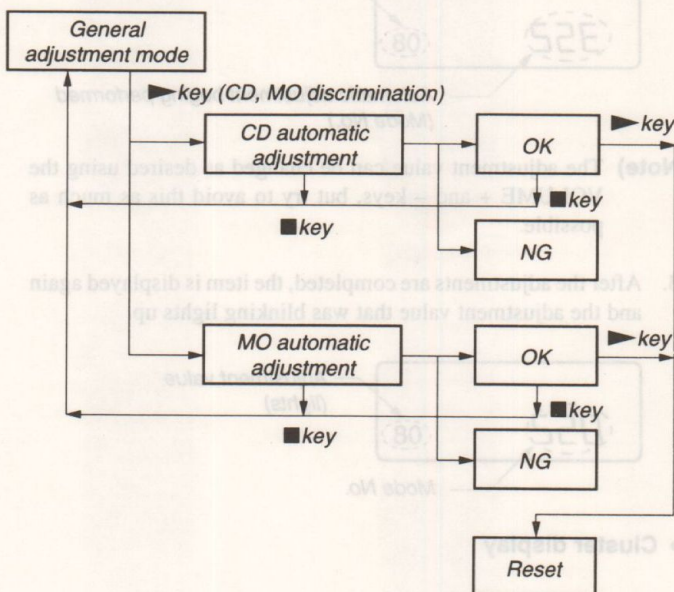


## General Adjustment Mode

- Set the test mode, press the ◀ key, and set the general adjustment mode.
- To set other modes, exit the test mode once and set the test mode again.
- When the general adjustment mode is set, the LCD display will be as follows.



### • Structure of General Adjustment Mode



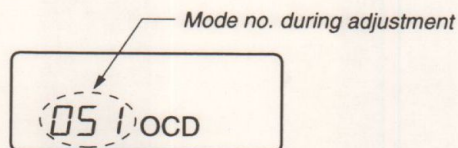
### • Adjusting Method

- Set the test mode, press the ◀ key to set the general adjustment mode.
- Load the CD test disc (TDYS-1) or SONY MO disc available on the market.
- When the ► key is pressed, the disc is determined if CD or MO, the automatic adjustment modes are set, and adjustments are performed automatically in the following order.

#### • CD Automatic Adjustment

No.	Mode No.	Adjustment
1	052	CD EF balance adjustment
2	053	CD ABCD level adjustment
3	055	CD focus gain adjustment
4	056	CD tracking gain adjustment
5	057	CD focus bias adjustment

\* Display during CD automatic adjustment



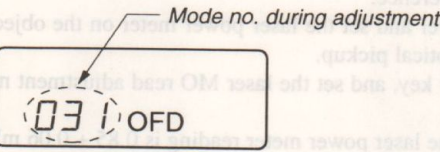


SECTION 4  
ELECTRICAL ADJUSTMENTS

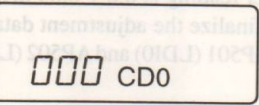
• MO Automatic Adjustment

No.	Mode No.	Adjustment
1	032	MO playback EF balance adjustment
2	033	MO playback ABCD level adjustment
3	037	MO focus gain adjustment
4	038	MO tracking gain adjustment
5	039	MO focus bias adjustment
6	042	Low reflection CD EF balance adjustment
7	043	Low reflection CD ABCD level adjustment
8	045	Laser low reflection CD read adjustment
9	046	Low reflection CD tracking gain adjustment

\* Display during MO automatic adjustment

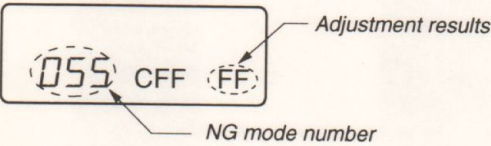


4. If the automatic adjustment results are OK, the following will be displayed.



\* In the case, when the ► key is pressed, the unit will be reset.

5. If the automatic adjustment results are NG, the following will be displayed.

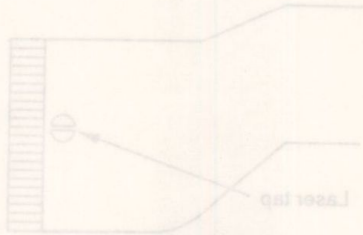


\* When NG, set the servo mode and perform the automatic adjustment of the NG item. (Refer to "Servo Mode".)

Precautions for Laser Diode Emission Check  
When checking the emission of the laser diode during adjustment, never view directly downwards as this may lead to blindness.

Precautions for Using Optical Pick Up  
(KMS-240A13N)

The laser diode inside the optical pickup damages by static electricity easily. Solder the laser tap of the flexible board with static shielding. Also take the necessary measures to prevent damages by static electricity. Handle the flexible board with care as it breaks easily.



Optical pickup flexible board

Precautions for Adjustment

- 1) Perform all adjustments in the order given in the test mode.
- 2) After adjusting, exit the test mode.
- 3) Use the following tools and measuring instruments.
  - CD test disc TDY-1 (Parts Code: 4-263-046-01)
  - Recorded MO disc F1DM-1 (Parts Code: 1-2501-054-A)
  - Recorded MO disc F1DM-2001 (Parts Code: 1-2501-046-A)
  - Laser power meter LPM-8001 (Parts Code: 1-2501-046-A)
  - Oscilloscope (Frequency band above 40 MHz. Perform the calibration of probe first before measuring.)
  - Digital voltmeter
- 3) Unless specified otherwise, supply DC4.5V from the DC IN 4.5V jack.
- 4) Switch knob positions:
  - Hold switch.....OFF
  - AV12 switch.....OFF



## SECTION 4

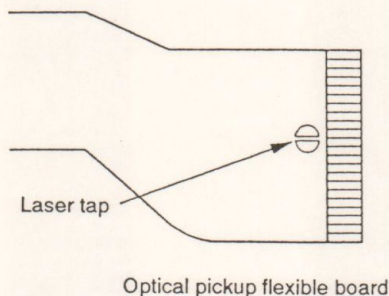
### ELECTRICAL ADJUSTMENTS

#### Precautions for Laser Diode Emission Check

When checking the emission of the laser diode during adjustments, never view directly downwards as this may lead to blindness.

#### Precautions for Using Optical Pick Up (KMS-240A/J2N)

As the laser diode inside the optical pickup damages by static electricity easily, solder the laser tap of the flexible board when handling. Also take the necessary measures to prevent damages by static electricity. Handle the flexible board with care as it breaks easily.



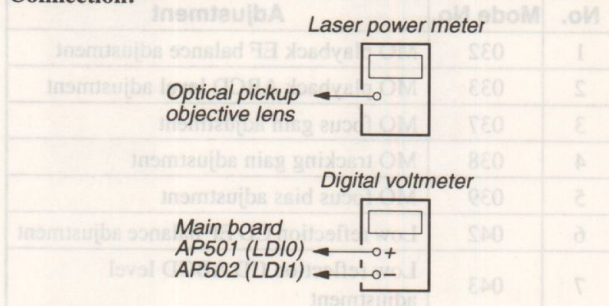
#### Precautions for Adjustment

- 1) Perform all adjustments in the order given in the test mode.  
After adjusting, exit the test mode.
- 2) Use the following tools and measuring instruments.
  - CD test disc TDYS-1 (Parts Code: 4-963-646-01)
  - Recorded MO disc PTDM-1 (Parts Code: J-2501-054-A)
  - Laser power meter LPM-8001 (Parts Code: J-2501-046-A)
  - Oscilloscope (Frequency band above 40 MHz. Perform the calibration of probe first before measuring.)
  - Digital voltmeter
- 3) Unless specified otherwise, supply DC4.5V from the DC IN 4.5V jack.
- 4) Switch, knob positions
 

Hold switch .....	OFF
AVLS switch .....	OFF

#### Laser Power Check

##### Connection:

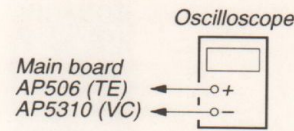


##### Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the laser power adjustment mode (Mode: 020) using the VOLUME + and - keys.
3. Press the ◀◀ key and move the optical pickup to the inner most circumference.
4. Open the cover and set the laser power meter on the objective lens of the optical pickup.
5. Press the ► key, and set the laser MO read adjustment mode (Mode: 021).
6. Check that the laser power meter reading is  $0.85 \pm 0.06$  mW.
7. Check that the voltage between AP501 (LDI0) and AP502 (LDI1) at this time is below 61 mV.
8. Press the ► key, and set the laser MO write adjustment mode (Mode: 022).
9. Check that the laser power meter reading is  $6.8 \pm 0.05$  mW.
10. Press the PLAY MODE key to finalize the adjustment data.
11. Check that the voltage between AP501 (LDI0) and AP502 (LDI1) at this time is below 132mV.
12. Press the ■ key.
13. Exit the test mode.



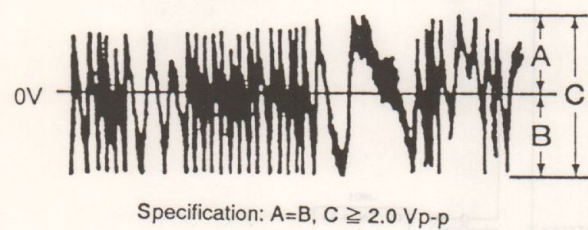
### MO Traverse Adjustment Connection:



#### Adjusting Method:

1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the MO playback adjustment mode (Mode: 030) using the VOLUME + and – keys.
3. Press the ◀◀ and ▶▶ keys and move the optical pickup to the center circumference.
4. Load any MO disc available on the market.
5. When the ► key is pressed, the MO playback EF balance adjustment mode (Mode: 032) will be set after focus search ON (Mode 031).
6. Press the PLAY MODE key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

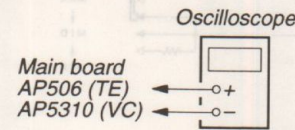
(Traverse Waveform)



7. Check that the traverse level at this time is above 2.0 Vp-p.
8. Press the ■ key.
9. Exit the test mode.

**Note)** Using a recorded disc in this adjustment will erase the data.

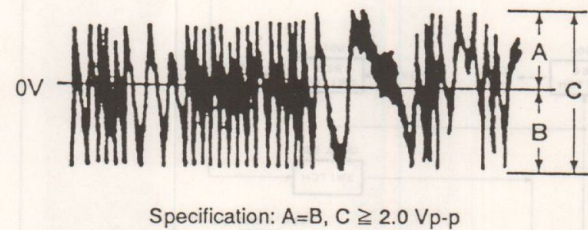
### Low Reflection CD Traverse Adjustment Connection:



#### Adjusting Method:

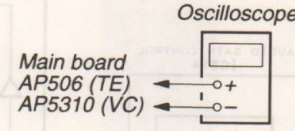
1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the low reflection CD playback adjustment mode (Mode: 040) using the VOLUME + and – keys.
3. Load any MO disc available on the market.
4. When the ► key is pressed, the low reflection CD playback EF balance adjustment mode (Mode: 042) will be set after low reflection CD focus search ON (Mode: 041).
5. Press the PLAY MODE key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse Waveform)



6. Check that the traverse level at this time is above 2.0 Vp-p.
7. Press the ■ key.
8. Exit the test mode.

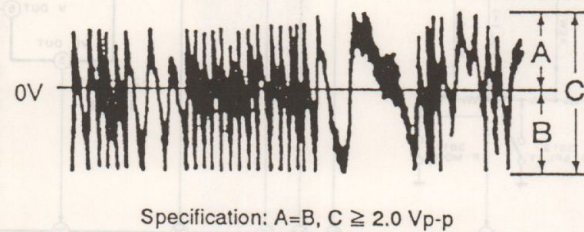
### CD Traverse Adjustment Connection:



#### Adjusting Method:

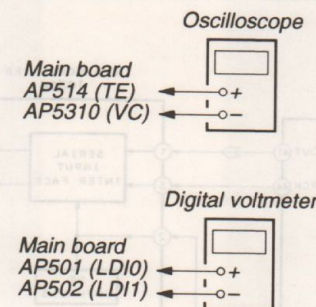
1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the CD playback adjustment mode (Mode: 050) using the VOLUME + and – keys.
3. Press the ◀◀ and ▶▶ keys and move the optical pickup to the center circumference.
4. Load a CD test disc (TDYS-1).
5. When the ► key is pressed, the CD playback EF balance adjustment mode (Mode: 052) will be set after CD focus search ON (Mode: 051).
6. Press the PLAY MODE key to perform automatic adjustment, and check that the traverse waveform is symmetrical at the top and bottom.

(Traverse Waveform)



7. Check that the traverse level at this time is above 2.0 Vp-p.
8. Press the ■ key.
9. Exit the test mode.

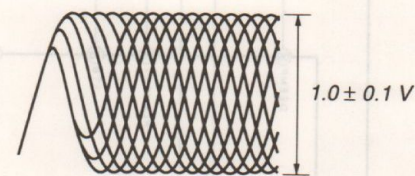
### CD RF Level Check. Connection:



#### Adjusting Method:

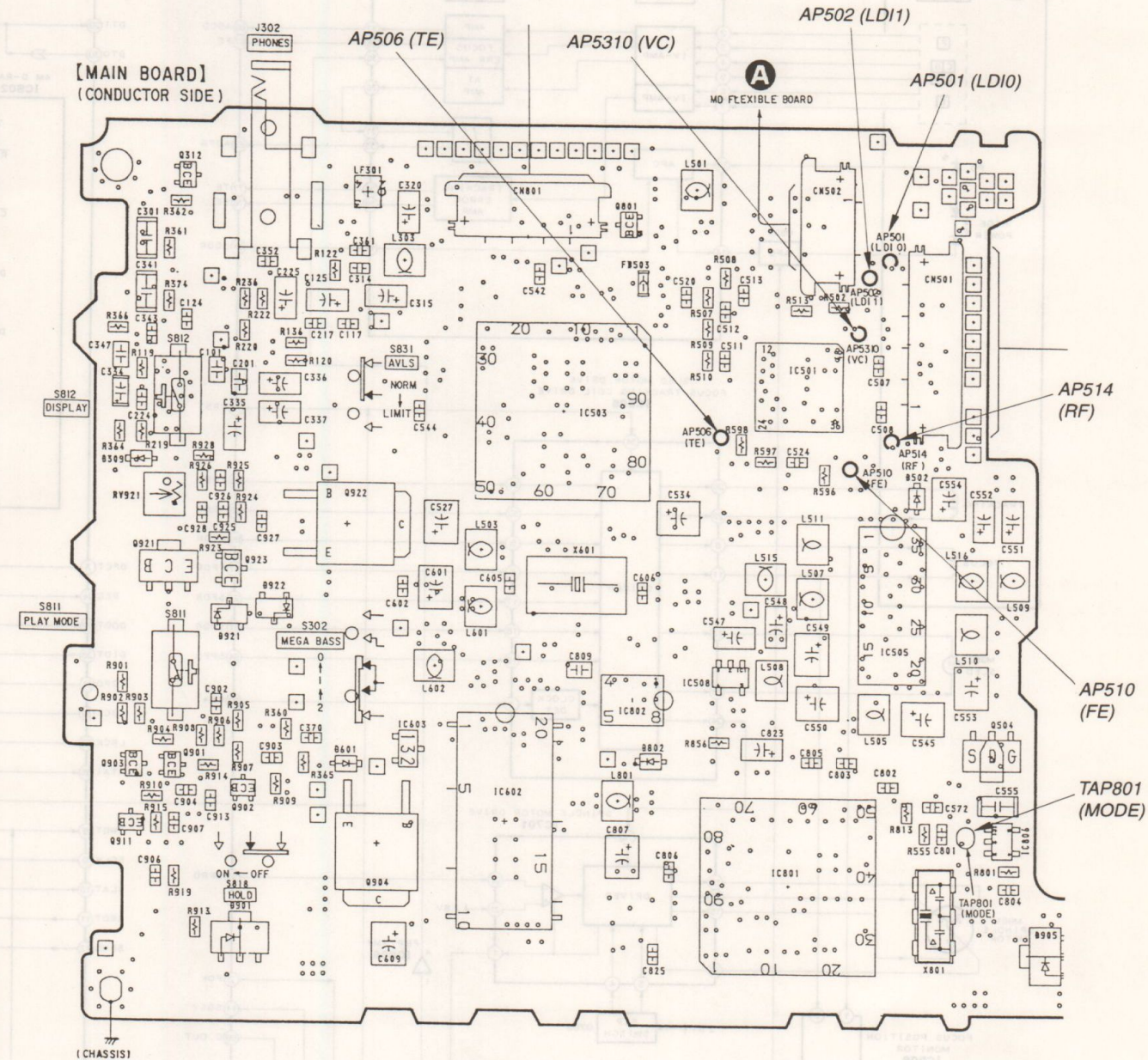
1. Set the servo mode of the test mode (Mode: 000).
2. Press the ► key, and set the CD playback adjustment mode (Mode: 050) using the VOLUME + and – keys.
3. Press the ◀◀ and ▶▶ keys and move the optical pickup to the center circumference.
4. Load a CD test disc (TDYS-1).
5. When the ► key is pressed, the CD EF balance adjustment mode (Mode: 052) will be set after CD focus search ON (Mode: 051).
6. When the ► key is pressed, the ABCD level adjustment mode (Mode: 053) is set.
7. Press the PLAY MODE key to perform automatic adjustment, and check that the RF level is 1.0 + 0.1 Vp-p.

(RF Waveform)



8. Check that the voltage between AP501 (LDI0) and AP502 (LDI1) at this time is below 61 mV.
9. Press the ■ key.
10. Exit the test mode.

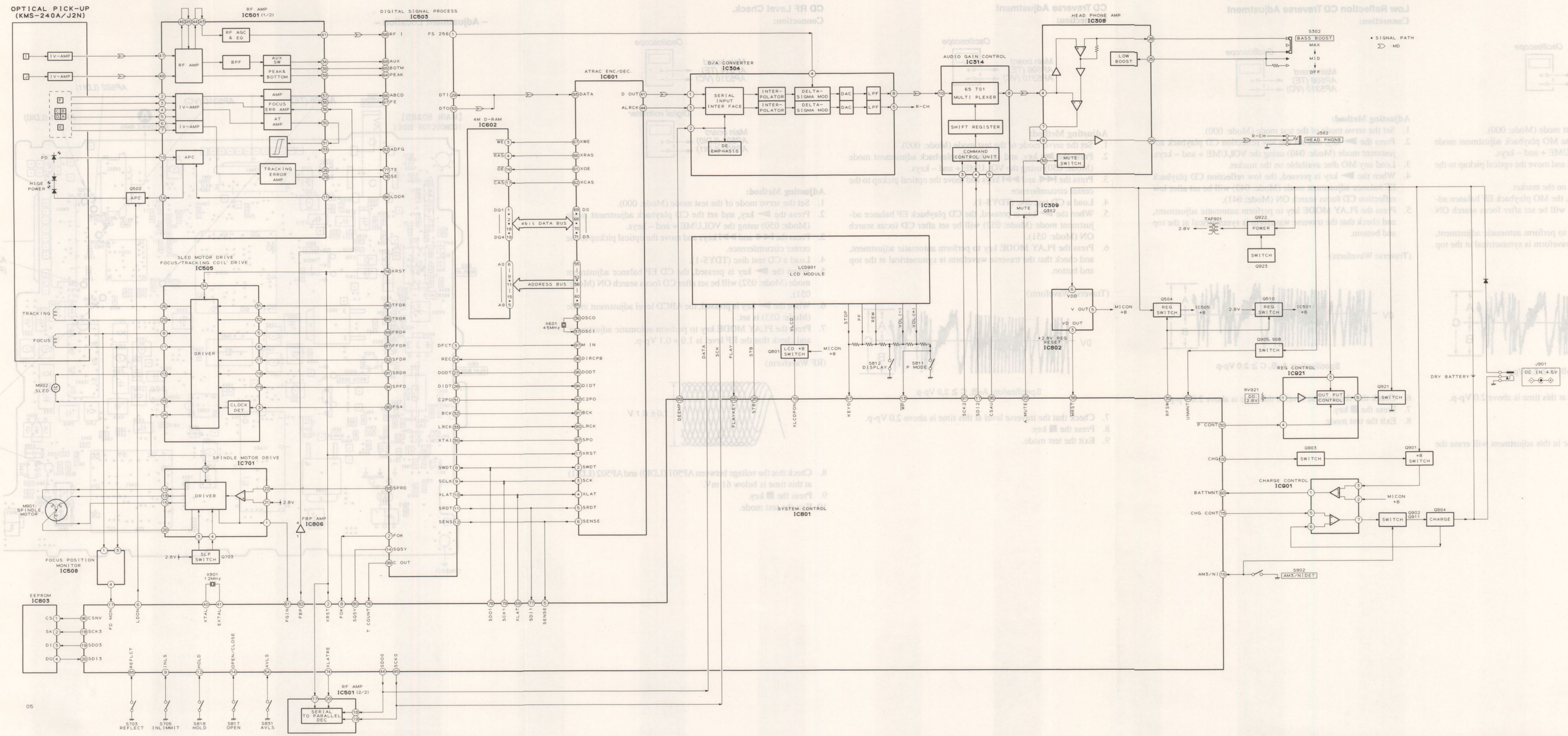
### – Adjustment Location –





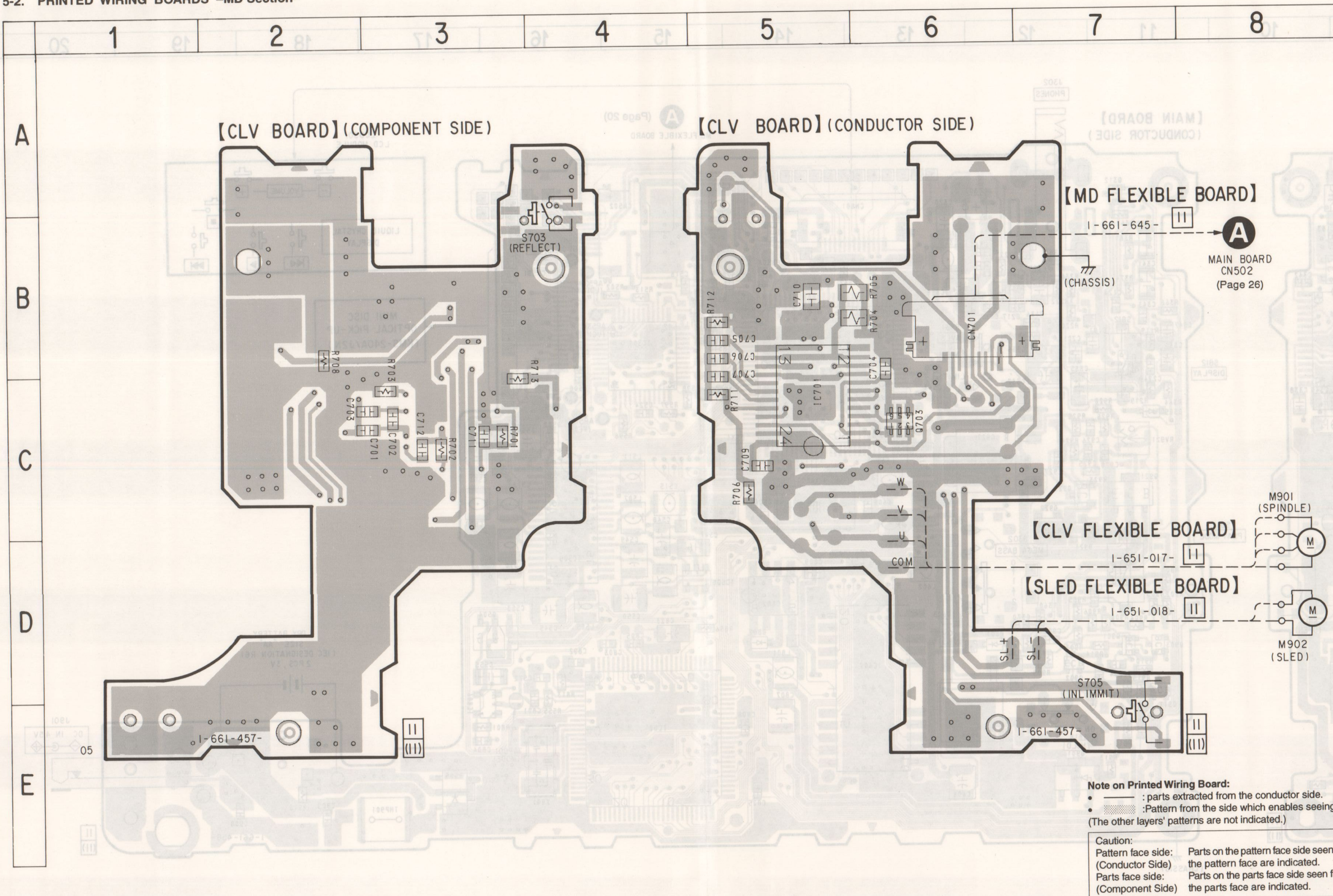
SECTION 5  
DIAGRAMS

5-1. BLOCK DIAGRAM

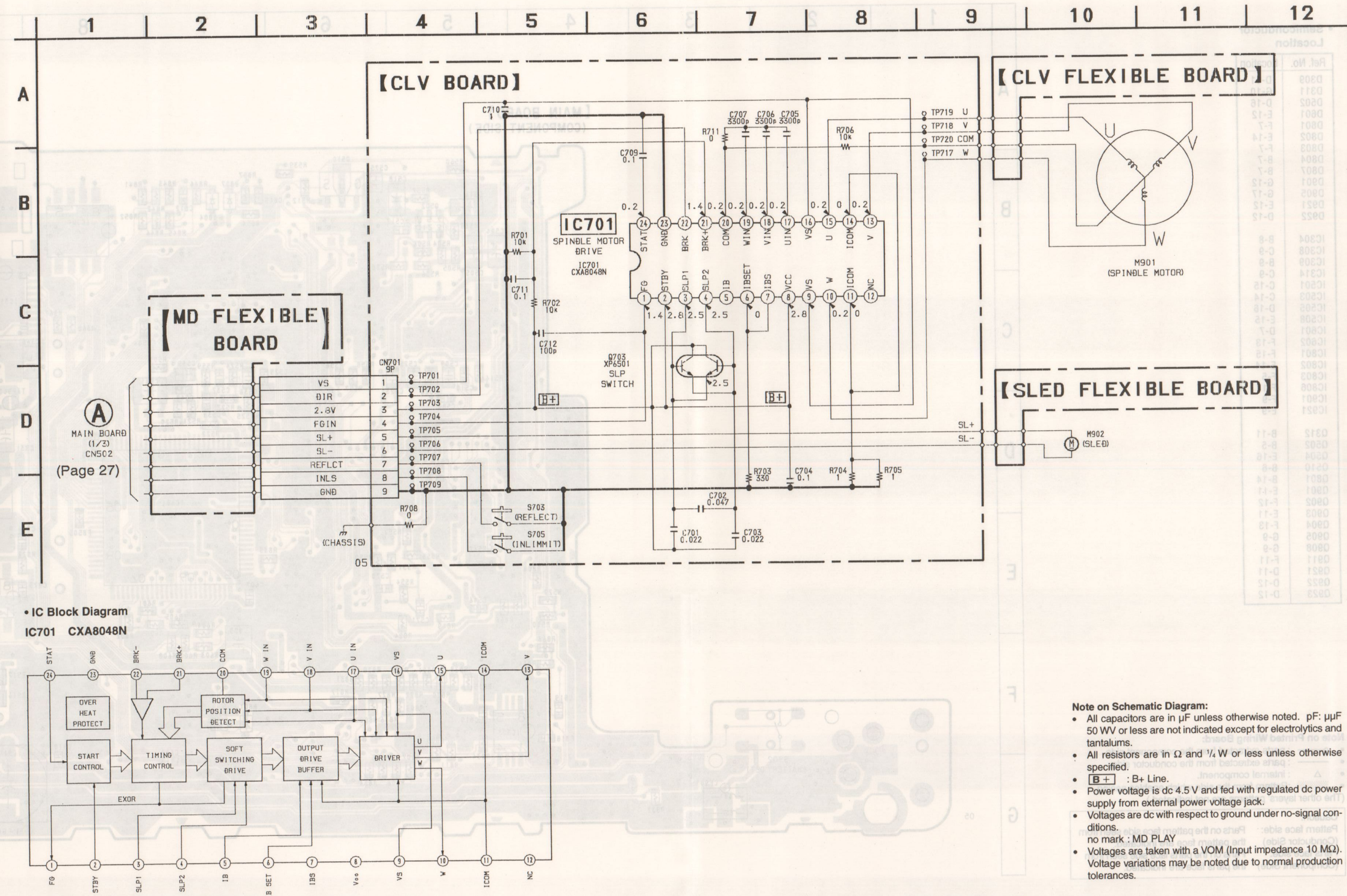




## 5-2. PRINTED WIRING BOARDS -MD Section-



## 5-3. SCHEMATIC DIAGRAM -MD Section-





5-4. PRINTED WIRING BOARD -MAIN Section-

• Semiconductor Location

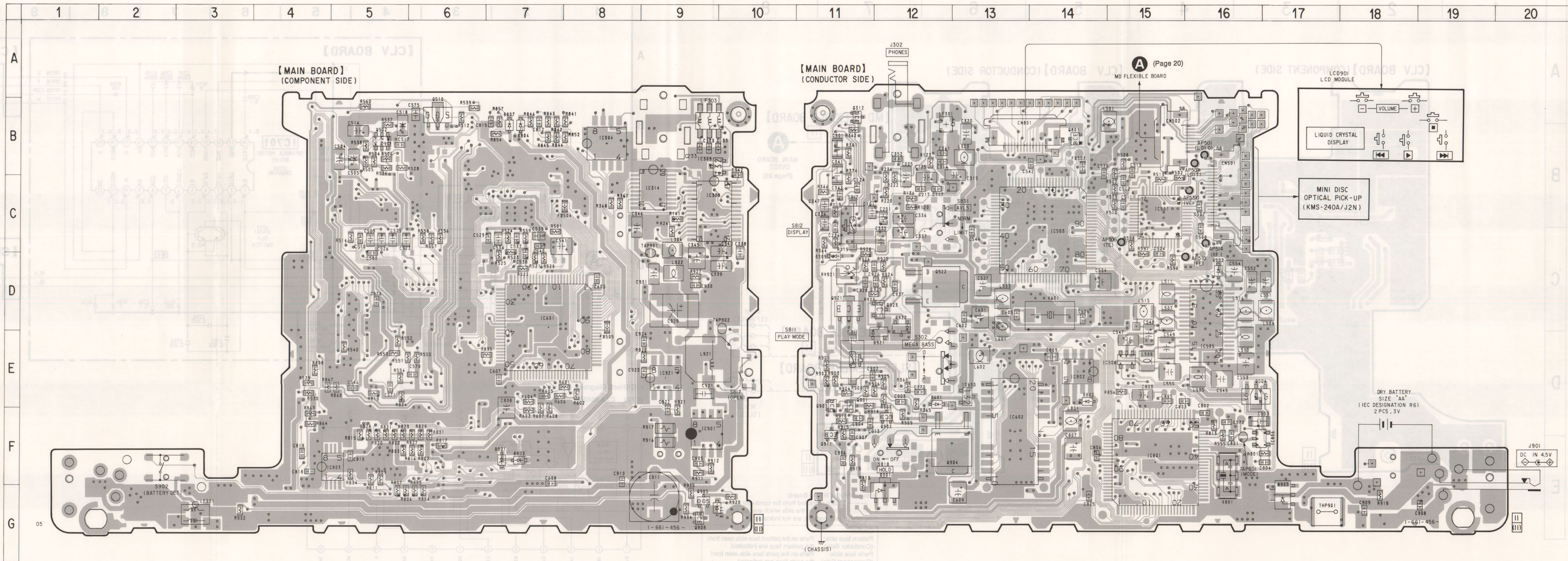
Ref. No.	Location
D309	D-11
D311	G-10
D502	D-16
D601	E-12
D801	F-7
D802	E-14
D803	F-7
D804	B-7
D807	B-7
D901	G-12
D905	G-17
D921	E-12
D922	D-12
IC304	B-8
IC308	C-9
IC309	B-9
IC314	C-9
IC501	C-15
IC503	C-14
IC505	D-16
IC508	E-15
IC601	D-7
IC602	F-13
IC801	F-15
IC802	E-14
IC803	F-5
IC806	F-17
IC901	F-9
IC921	E-9
Q312	B-11
Q502	B-5
Q504	E-16
Q510	B-6
Q801	B-14
Q901	E-11
Q902	F-12
Q903	E-11
Q904	F-13
Q905	G-9
Q908	G-9
Q911	F-11
Q921	D-11
Q922	D-12
Q923	D-12

Note on Printed Wiring Board:

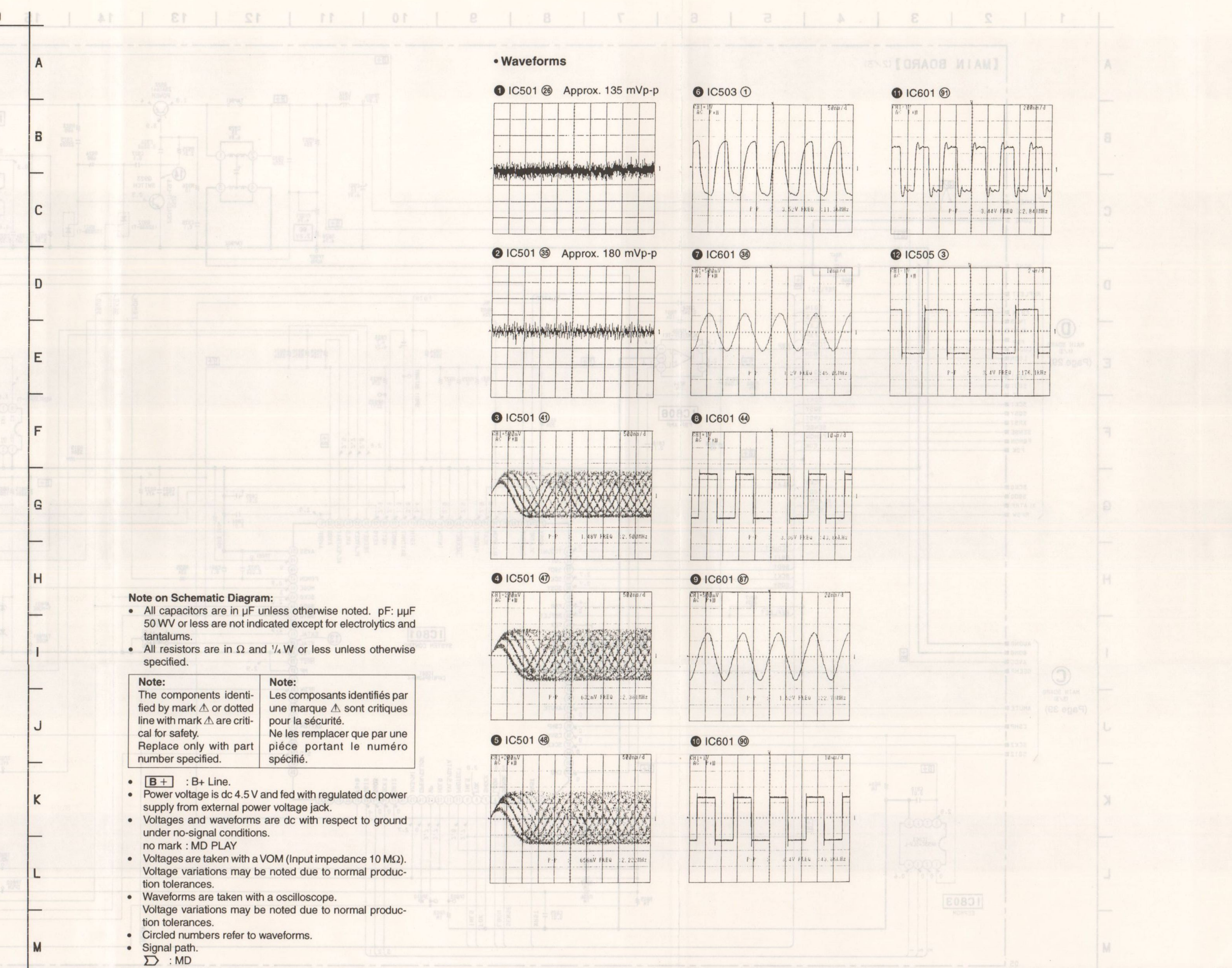
- : parts extracted from the component side.
  - : parts extracted from the conductor side.
  - △ : internal component.
  - ▨ : Pattern from the side which enables seeing.
- (The other layers' patterns are not indicated.)

Caution:

Pattern face side: Parts on the pattern face side seen from the pattern face are indicated.  
(Conductor Side)  
Parts face side: Parts on the parts face side seen from the parts face are indicated.  
(Component Side)





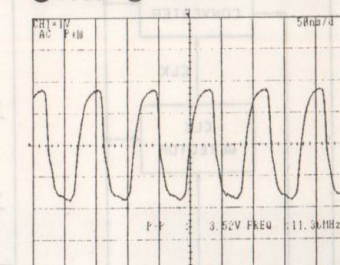
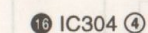
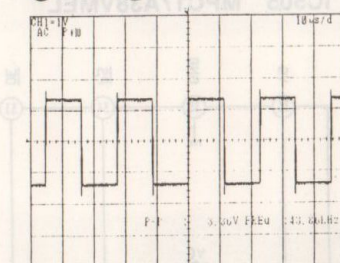
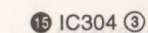








- **Waveforms**

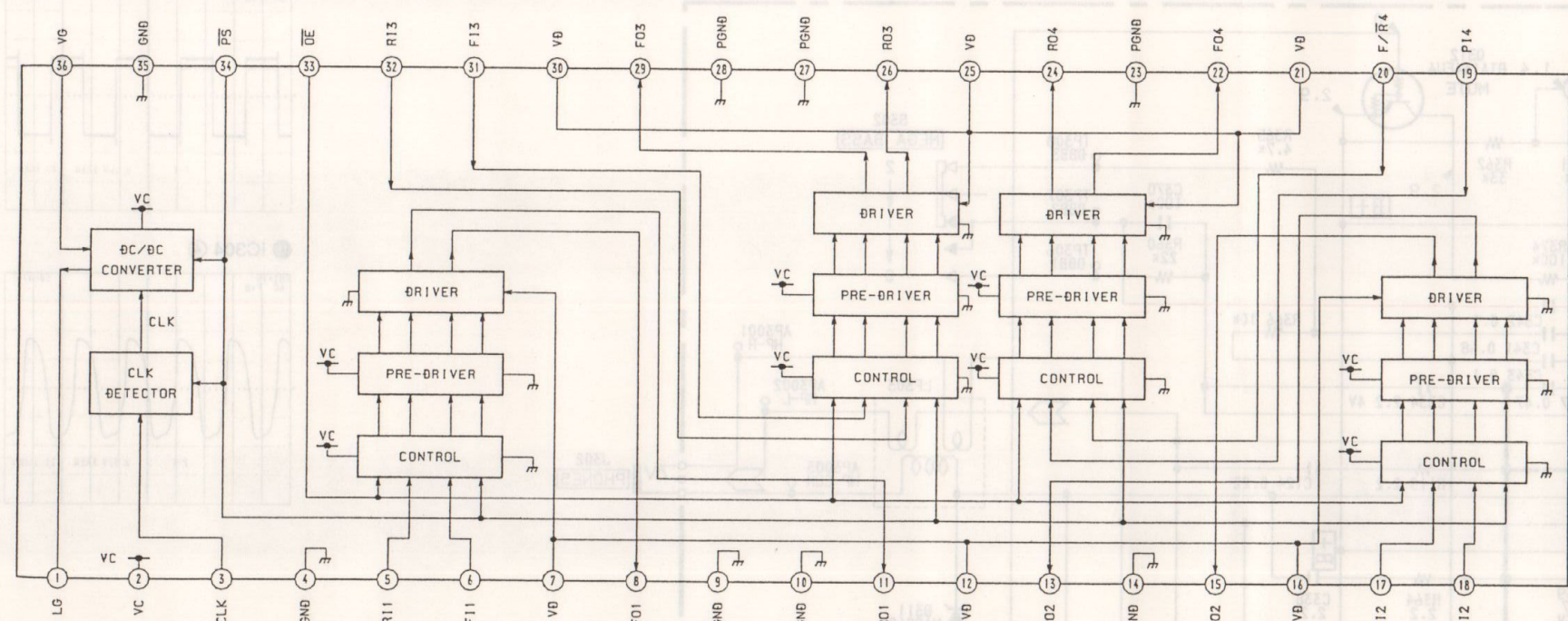


- Voltages are taken with a VOM (Input impedance 10 M $\Omega$ ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with an oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.

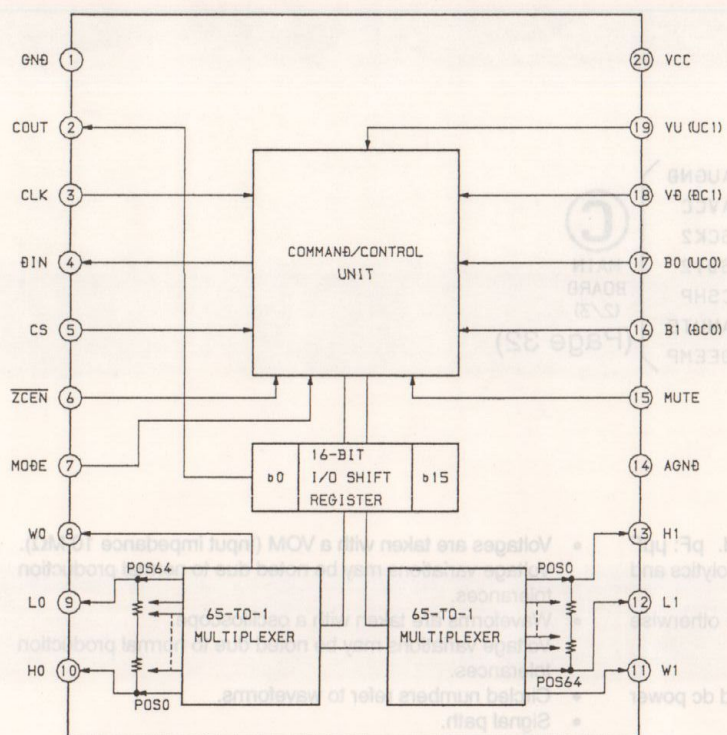


• IC Block Diagrams

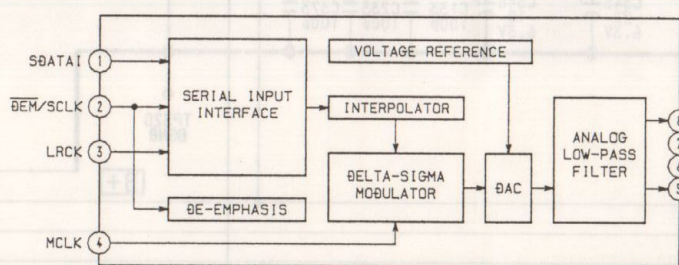
IC505 MPC17A38VMEL



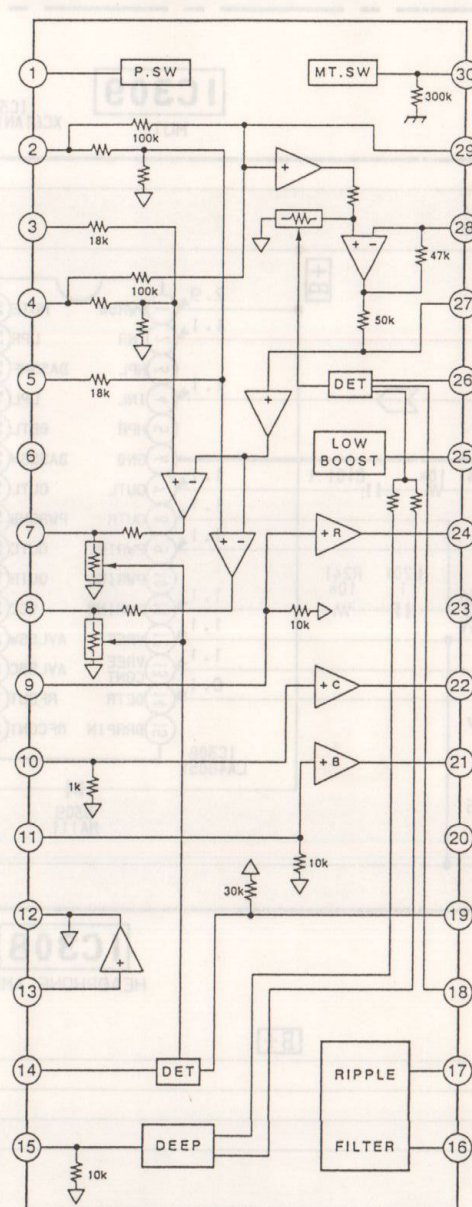
IC314 DS1802-TE2



IC304 CS4330-KS-H



IC308 LA4805V-TLM



5-8. IC PIN FUNCTION DESCRIPTION  
MAIN BOARD IC501 CXA1981AR (RF AMP)

Pin No.	Pin Name	I/O	Function
1	VC	O	Output terminal for the center point voltage (1/2 VCC) generated
2-7	A-F	I	Signal input from detector circuit in the optical pick-up block
8	FI	I	Signal (-) input of the operational amplifier for F signal
9	FO	O	Signal output of the operational amplifier for F signal
10	PD	I	Front monitor Connected to the photo diode
11	APCREF	I	Input terminal for the setting of laser power
12	TEMPI	I	Terminal for the connection to temperature sensor Not used this set (OPEN)
13	GND	-	GND terminal
14	AAPC	O	LD amplifier output terminal of APC circuit
15	DAPC	O	Not used (OPEN)
16	TEMPR	O	Output terminal of the reference voltage for temperature sensor Not used this set (OPEN)
17	XRST	I	Reset signal input from the system controller (IC801) When reset : "L"
18	SWDT	I	Write data signal input from the system controller (IC801)
19	SCLK	I	Clock signal input from the system controller (IC801)
20	XLAT	I	Latch signal input from the system controller (IC801)
21	VREF	O	Reference voltage output Not used this set (OPEN)
22	TENV	O	Not used (OPEN)
23	THLD	I	Not used (OPEN)
24	VCC	-	Power supply terminal (+3.3V)
25	TFIL	I	Not used (OPEN)
26	TE	O	Tracking error signal output to CXD2535BR (IC503)
27	TLB	I	Input terminal of the adder signal to tracking error
28	CSLED	I	Terminal for the sled error lowpass filter
29	SE	O	Sled error signal output to CXD2535BR (IC503)
30	ADFM	O	FM signal output terminal of the ADIP
31	ADIN	I	Input terminal by AC coupling is FM signal of the ADIP
32	ADAGC	I	External capacitor connect terminal for AGC of the ADIP
33	ADFG	O	ADIP double turned FM signal output to CXD2535BR (IC503) (22.05kHz ± 1kHz)
34	AUX	O	Sub signal output to CXD2535BR (IC503)
35	FE	O	Focus error signal output to CXD2535BR (IC503)
36	FLB	I	Input terminal of the adder signal to focus error
37	ABCD	O	Light amount signal output to CXD2535BR (IC503)
38	BOTM	O	Light amount bottom hold signal output to CXD2535BR (IC503)
39	PEAK	O	Light amount peak hold signal output to CXD2535BR (IC503)
40	PFAGC	I	External capacitor connect terminal of AGC circuit for the RF
41	RF	O	Playback EFM RF signal output to CXD2535BR (IC503)
42	ISSET	I	Setting terminal for the internal circuit constant 22kHz, BPF center frequency
43	AGCI	I	Input terminal by AC coupling is RF signal
44	RFO	O	RF signal output terminal
45	MORFI	I	Input terminal by AC coupling is RFsignal of the MO
46	MORFO	O	RF signal output terminal of the MO
47, 48	I, J	I	Signal input from detector circuit in the optical pick-up block



**MAIN BOARD IC503 CDX2535BR (DIGITAL SIGNAL PROCESSOR)**

Pin No.	Pin Name	I/O	Function
1	FS256	O	11.2896MHz clock signal output (MCLK system)
2	FOK	O	Focus OK signal output to the system controller (IC801) "H" is output when the focus is applied
3	DFCT	O	Defect ON/OFF selection signal output to CXD2536AR (IC601)
4	SHCK	O	Track jump detection signal output to the system controller Not used this set (OPEN)
5	SHCKEN	I	Track jump detection enable input Not used this set (Fixed at "L")
6	WRPWR	I	Laser power selection signal input from the system controller Not used this set (Fixed at "L")
7	DIRC	I	Not used this set (Fixed at "H")
8	SWDT	I	Write data signal input from the system controller (IC801)
9	SCLK	I	Serial clock signal input from the system controller (IC801)
10	XLAT	I	Serial latch signal input from the system controller (IC801)
11	SRDT	O	Read data signal output to the system controller (IC801)
12	SENS	O (3)	Internal status (SENS) output to the system controller (IC801)
13	ADSY	O	ADIP sync signal output Not used this set (OPEN)
14	SQSY	O	Sub-code Q sync (SCOR) output to the system controller (IC801) "L" every 13.3msec, Almost "H"
15	DQSY	O	Digital in U-bit CD format sub-code Q sync (SCOR) output to the system controller (IC801) "L" every 13.3msec, Almost "H" Not used this set (OPEN)
16	XRST	I	Reset signal input from the system controller (IC801) When reset "L"
17	SBOCK	O	Not used this set (Fixed at "L")
18	SBODT	O	Not used this set (OPEN)
19	SBIDT	I	Not used this set (Fixed at "L")
20	DOUT	O	Output terminal of the digital audio signal (for optical out) Not used this set (OPEN)
21	DIN	I	Input terminal of the digital audio signal (for optical out) (Fixed at "L")
22	FMCK	O	FM modulation clock signal output of the ADIP Not used this set (OPEN)
23	ATER	O	ADIP CRC flag output When error "H" Not used this set (OPEN)
24	REC	I	Record/playback selection signal input from the system controller When recording : "H", when playback : "L"
25	VSS0	-	GND terminal (Digital system)
26	DOVF	I	Validity flag input terminal for the digital audio out Not used this set (Fixed at "L")
27	DODT	I	Input terminal of 16-bit data signal for the digital audio out
28	DIDT	O	Output terminal of 16-bit data signal for the digital audio in
29	DTI	I	Record audio data signal input from CXD2536AR (IC601)
30	DTO	O (3)	Plyback audio data signal output to CXD2536AR (IC601)
31	C2PO	O	C2PO (indicate the error state of the data) signal output to CXD2536AR (IC601) Playback : C2PO ("H"), Digital recording : D. In-Vflag, Analog recording : "L"
32	BCK	O	Bit clock (2.8224MHz) signal output to CXD2536AR (IC601) (MCLK system)
33	LRCK	O	L/R clock (44.1kHz) signal output to CXD2536AR (IC601) (MCLK system)
34	XTAO	O	System clock (512Fs=22.5792MHz) signal output Not used this set (OPEN)
35	XTAI	I	System clock (512Fs=22.5792MHz) signal input from CXD2536AR (IC601)
36	MCLK	O	MCLK clock (22.5792MHz) signal output Not used this set (OPEN)
37	XBCK	O	BCK (pin 32) inverted output Not used this set (OPEN)
38	VDD0	-	Power supply terminal (+3.3V) (Digital system)
39	WDCK	O	WDCK clock (88.2kHz) signal output (MCLK system) Not used this set (OPEN)
40	RFCK	O	RFCK clock (7.35kHz) signal output (MCLK system) Not used this set (OPEN)



Pin No.	Pin Name	I/O	Function
41	WFCK	O	WFCK clock (7.35kHz) signal output (When playback : EFM decoder PLL system, When recoding : EFM encoder PLL system) Not used this set (OPEN)
42	GTOP	O	Opens the playback EFM frame sync protection window when "H" Not used this set (OPEN)
43	GFS	O	The playback EFM frame sync and interpolation protection timing match when "H" Not used this set (OPEN)
44	XPLCK	O	EFM decoder PLL clock (98Fs=4.3218MHz) signal output Falling edge of the EFM PLL clock and the EFM signal match Not used this set (OPEN)
45	EFMO	O	FM signal output (When recoding) Not used this set (OPEN) Overflow detection signal output of the internal RAM (Decoder monitor out)
46	RAOF	O	RAOF is signal generated when the 32k RAM exceeds the $\pm 4F$ jitter margin Not used this set (OPEN)
47	MVCI	I	Oscillation input for PLL of the digital in Not used this set (Fixed at "L")
48	TEST2	I	Test terminal input (Fixed at "L")
49	DIPD	O (3)	Phase comparator output for PLL of the digital in When the internal VCO : Frequency ; Low "H" When the external VCO : Frequency ; Low "L" Not used this set (OPEN)
50	VSS1	-	GND terminal (Digital system)
51	DICV	I (A)	Control voltage input terminal of the internal VCO for digital in PLL Not used this set (Fixed at "H")
52	DIFI	I (A)	Filter input terminal of the internal VCO for digital in PLL Not used this set (Fixed at "H")
53	DIFO	O (A)	Filter output terminal of the internal VCO for digital in PLL Not used this set (OPEN)
54	AVD1	-	Power supply terminal (+3.3V) (Analog system)
55	ASYO	O	Playback EFM full-swing output (L=VSS, H=VDD)
56	ASYI	I (A)	Playback EFM asymmetry compare voltage input terminal
57	BIAS	I (A)	Playback EFM asymmetry circuit constant current input terminal
58	RFI	I (A)	Playback EFM RF signal input from CXA1981AR (IC501)
59	AVS1	-	GND terminal (Analog system)
60	CLTV	I (A)	VCO control voltage input terminal of the PLL for decoder PLL master clock
61	PCO	O (3)	Phase comparator output terminal of the PLL for decoder PLL master clock
62	FILI	I (A)	Filter input terminal of the PLL for decoder PLL master clock
63	FILO	O (3)	Filter output terminal of the PLL for decoder PLL master clock
64	PEAK	I (A)	Light amount peak hold signal input from CXA1981AR (IC501)
65	BOTM	I (A)	Light amount bottom hold signal input from CXA1981AR (IC501)
66	ABCD	I (A)	Light amount signal input from CXA1981AR (IC501)
67	FE	I (A)	Focus error signal input from CXA1981AR (IC501)
68	AUX	I (A)	Sub signal input from CXA1981AR (IC501)
69	VC	I (A)	Center point voltage (1/2 VCC) input from CXA1981AR (IC501)
70	ADIO	O (A)	Monitor output of the A/D converter input signal Not used this set (OPEN)
71	TEST3	I (A)	Test input terminal (Fixed at "L")
72	AVD2	-	Power supply terminal (+3.3V) (Analog system)
73	ADRT	I (A)	A/D converter action limits (upper side) voltage input (Fixed at "H")
74	ADRB	I (A)	A/D converter action limits (lower side) voltage input (Fixed at "L")
75	AVS2	-	GND terminal (Analog system)
76	SE	I (A)	Sled error signal input from CXA1981AR (IC501)
77	TE	I (A)	Tracking error signal input from CXA1981AR (IC501)
78	AUX2	I (A)	Sub signal input terminal (2) from CXA1981AR (IC501)
79	DCHG	I (A)	Connected to the GND
80	APC	I (A)	Input terminal for the laser APC Not used this set (Fixed at "L")
81	TEST	I	Test input terminal (Fixed at "L")



Pin No.	Pin Name	I/O	Function
82	ADFG	I	ADIP double turned FM signal input from CXA1981AR (IC501) (22.05kHz $\pm$ 1kHz) (TTL schmidt input)
83	TS25	I	Test input terminal (Fixed at "L")
84	LDDR	O	Laser APC signal output to CXA1981AR (IC501)
85	TRDR	O	Tracking servo drive signal output (-)
86	TRDR	O	Tracking servo drive signal output (+)
87	FFDR	O	Focus servo drive signal output (+)
88	VDD1	I	Power supply terminal (+3.3V) (Digital system)
89	FRDR	O	Focus servo drive signal output (-)
90	FS4	O	176.4kHz clock signal output (MCLK system) Not used this set (OPEN)
91	SRDR	O	Sled servo drive signal output (-)
92	SFDR	O	Sled servo drive signal output (+)
93	SPRD	O	Spindle servo drive signal output (-)
94	SPFD	O	Spindle servo drive signal output (+)
95	DCLO	O	Not used (OPEN)
96	DCLI	I	Not used (OPEN)
97	XDCL	O	Not used (OPEN)
98	OFTRK	O	Offtrack signal output Not used this set (OPEN)
99	COUT	O	Traverse count signal output
100	VSS2	-	GND terminal (Digital system)

\*: On I/O section

(3) : 3 state output (A) : Analog output



**MAIN BOARD IC601 CXD2536AR (ATRAC ENCODER/DECODER)**

Pin No.	Pin Name	I/O	Function
1	VDD	–	Power supply terminal (+3.3V)
2	SWDT	I	Write data signal input from the system controller (IC801)
3	SCK	I	Serial clock signal input from the system controller (IC801)
4	XLAT	I	Serial latch signal input from the system controller (IC801)
5	SRDT	O	Read data signal output to the system controller (IC801)
6	SENSE	O	Internal status (SENSE) output to the system controller (IC801)
7	SCMD0	I	Serial command control mode input from the system controller (Fixed at “H”)
8	SCMD1	I	Serial command control mode input from the system controller (Fixed at “H”)
9	XINT	O	Interruption status output to the system controller (IC801) Not used this set (OPEN)
10	RCPB	I	Record/playback selection signal input (Fixed at “L”)
11	WRMN	I	Write/monitor mode selection signal input from the system controller (Fixed at “L”)
12	TX	I	Writing data transmission timing input from the system controller Used together with the magnetic field head ON/OFF output (Fixed at “L”)
13	VSS	–	GND terminal
14	SICK	I	Chip reserve terminal (Fixed at “H”)
15	IDSL	I	Chip reserve terminal (Fixed at “H”)
16	XILT	I	Chip reserve terminal (Fixed at “H”)
17	XRST	I	Reset signal input from the system controller (IC801) When reset : “L”
18-21	TS0-TS3	I	Test input terminal (Fixed at “L”)
22	EXIR	I	Chip reserve terminal (Fixed at “L”)
23	SASL	I	Single use the block selection “L” : ATRAC, “H” : RAM controller (Fixed at “L”)
24	SNGLE	I	Normally fixed at “L”, Fixed at “H” when the ATRAC or RAM controller is single used (Fixed at “L”)
25	VSS	–	GND terminal
26	AIRCPB	O	Record/playback mode signal output terminal of the ATRAC or external audio block Not used this set (OPEN)
27	XRQ	I/O	XRQ signal input/output terminal of the ATRAC interface Not used this set (OPEN)
28	ADTO	I/O	Decoder data signal input/output terminal of the ATRAC Not used this set (OPEN)
29	ADTI	I/O	Encoder data signal input/output terminal of the ATRAC Not used this set (OPEN)
30	XALT	I/O	Data ready and XALT signal input/output terminal of the ATRAC interface Not used this set (OPEN)
31	ACK	I/O	ACK signal input/output terminal of the ATRAC interface Not used this set (OPEN)
32	AC2	I/O	Error data signal input/output terminal of the ATRAC interface Not used this set (OPEN)
33	LCHST	I/O	Lch Start data signal input/output terminal of the ATRAC interface Not used this set (OPEN)
34	EXE	I/O	EXE signal input/output terminal of the ATRAC interface Not used this set (OPEN)
35	MUTE	I/O	MUTE signal input/output terminal of the ATRAC interface Not used this set (OPEN)
36	OSCO	O	45.1584MHz clock oscillation output
37	OSCI	I	45.1584MHz clock oscillation input
38	VSS	–	GND terminal
39	ATT	I/O	ATT signal input/output terminal of the ATRAC interface Not used this set (OPEN)
40	F86	O	11.6msec timing signal output terminal of the ATRAC block Not used this set (OPEN)
41	DOUT	O	Monitor/audio decode data signal output to the D/A converter (IC304)
42	ADIN	I	Recording data signal input from the D/A converter Not used this set (Fixed at “L”)
43	ABCK	O	Bit clock signal output to the A/D, D/A converter Not used this set (OPEN)
44	ALRCK	O	L/R clock signal output to the D/A converter (IC304)
45-47	SA2-SA0	O	Address signal output Not used this set (OPEN)



Pin No.	Pin Name	I/O	Function
48,49	A11,A10	O	Address signal output Not used this set (OPEN)
50	VSS	–	GND terminal
51	VDD	–	Power supply terminal (+3.3V)
52-55	A03-A00	O	Address signal output to the RAM (IC602)
56-60	A04-A08	O	Address signal output to the RAM (IC602)
61	XOE	O	Output enable control signal output to the RAM (IC602)
62	XCAS	O	Column address strobe signal output to the RAM (IC602)
63	VSS	–	GND terminal
64	XCS	O	Chip select signal output to the RAM Not used this set (OPEN)
65	A09	O	Address signal output to the RAM (IC602)
66	XRAS	O	Row address strobe signal output to the RAM (IC602)
67	XWE	O	Write enable control signal output to the RAM (IC602)
68,69	D1,D0	I/O	RAM (IC602) data bus
70,71	D2,D3	I/O	RAM (IC602) data bus
72-74	D4-D6	I/O	Data bus Not used this set (OPEN)
75	VSS	–	GND terminal
76	D7	I/O	Data bus Not used this set (OPEN)
77	ERR	I/O	Input/output terminal of the error (C2PO) data signal to the external RAM Not used this set (OPEN)
78	EXTC2R	I	External RAM selection signal input for the error data writing (When “H” : External RAM) (Fixed at “L”)
79	BUSY	O	BUSY signal output of the RAM access Not used this set (OPEN)
80	EMP	O	Empty or before the full of the ATRAC data (When DSC=ASC+1 : “H”) Not used this set (OPEN)
81	FUL	O	Full or before the empty of the ATRAC data (When ASC=DSC+1 : “H”) Not used this set (OPEN)
82	EQL	O	Empty of the ATRAC data (When DSC=ASC : “H”) Not used this set (OPEN)
83	MDLK	O	Indicate the main/sub of the recording or playback data (When sub and linking : “H”, When the main : “L”) Not used this set (OPEN)
84	CPSY	O	Interpolation sync signal output Not used this set (OPEN)
85	CTMD0	O	DSC (Difference Signal Control) counter mode output Not used this set (OPEN)
86	CTMD1	O	DSC (Difference Signal Control) counter mode output Not used this set (OPEN)
87	SPO	O	System clock (512Fs=22.5792MHz) signal output to CXD2535BR (IC503)
88	VSS	–	GND terminal
89	MDSY	O	Sync detection signal output of the main data Not used this set (OPEN)
90	LRCK	I	L/R clock (44.1kHz) signal input from CXD2535BR (IC503)
91	BCK	I	Bit clock (2.8224MHz) signal input from CXD2535BR (IC503)
92	C2PO	I	C2PO (indicate the error mode of the data) signal input from CXD2535BR (IC503) When playback : C2PO (“H”), When digital recording : D. IN-Vflag, When analog recording : “L”
93	DATA	I/O	When recording : Record audio data signal output (Not used this set) When playback : Playback audio data signal input from CXD2535BR (IC503)
94	DIDT	I	16-bit data input terminal for the digital audio in
95	DODT	O	16-bit data output terminal for the digital audio out
96	DIRCPB	O	Disc drive, Record or playback mode output of the EFM encoder/decoder
97	MIN	I	Defect ON/OFF selection signal input from CXD2535BR (IC503)
98	SPOSL	I	IN/OUT selection input terminal of the pin 87 (“L” : IN, “H” : OUT)
99	MCK	O	Internal master clock signal output terminal of the RAM controller Not used this set (OPEN)
100	VSS	–	GND terminal



**MAIN BOARD IC801 CXP81960M-620R (SYSTEM CONTROL)**

Pin No.	Pin Name	I/O	Function
1	—	—	Not used (OPEN)
2	XRST	O	Reset signal output “L”: reset
3	—	—	} Not used (OPEN)
4	—	—	
5	SENSE	I	SENCE signal input
6	LDON	O	Laser diode ON signal output
7	SHOCK	I	Not used this set (Fixed at “L”)
8	FOK	I	Focus OK signal input
9	INLS	I	Defecting switch for internal circuit of sledding “L”: Internal circuit
10	PROTECT	I	Disc write protect switch (Fixed at “H”)
11	AVLS/DATA	O	LCD data output to remote control (Fixed at “L”)
12	HOLD	I	HOLD switch input “L”: Hold
13	WP	I	Wake-up signal input from remote control key and this unit key
14	OPEN/CLOSE	I	Upper cover OPEN/CLOSE detection “L”: CLOSE
15	AM3/NI	I	Detect whether the internal battery is a dry battery or a Ni/MH charging battery Ni/MH=“L”
16	—	—	Not used (OPEN)
17	SDI2	I	Serial data input
18	SCK3	I/O	Serial clock input/output for a EEPROM
19	SDO3	O	Serial data output for a EEPROM
20	SDI3	I	Serial data input for a EEPROM
21	FB+B	O	Focus bias • breeder current
22	—	—	} Not used (OPEN)
23	—	—	
24	—	—	
25	—	—	
26	—	—	
27	—	—	
28	STB	O	STB signal to LCD driver (low active)
29	—	—	Not used (OPEN)
30	P $\overline{\text{CONT}}$	O	Power control signal output “L”: on
31	BATTON	O	Battery operation “L” output
32	—	—	} Not used (OPEN)
33	—	—	
34	—	—	
35	RFSW	O	Power control output to RF amplifier (IC501)
36	—	—	Not used (OPEN)
37	MP	—	Not used this set (Fixed at “L”)
38	M $\overline{\text{RST}}$	I	Reset signal input
39	VSS	—	GND terminal
40	XTAL	I	System clock (12 MHz) signal input
41	EXTAL	O	System clock (12 MHz) signal output
42	CS	I	Not used this set (Fixed at “H”)
43	SDI0	I	Not used this set (Fixed at “L”)
44	SDO0	O	Serial data output



Pin No.	Pin Name	I/O	Function
45	SCK0	O	Serial data output
46	MODE	I	TEST terminal "L": test mode
47	FDMON	I (A)	Focus coil position monitor input
48	–	–	Not used (OPEN)
49	–	–	Not used this set (Fixed at "L")
50	AVSS	–	A/D converter GND
51	AVREF	–	A/D converter reference voltage input
52	AVDD	–	A/D converter power supply
53	AC/EXTBAT	I	AC adaptor or EXT battery detection input (Fixed at "H")
54	AVLS	I	AVLS switch input "L": on
55	PLAYKEY	I	PLAY key input
56	RECKEY	I	Not used this set (Fixed at "H")
57	KEY0	I (A)	Key input
58	KEY1	I (A)	Not used this set (Fixed at "H")
59	UNMNT	I (A)	UNREG voltage monitor
60	BATTMNT	I	Battery voltage monitor for power supplies from DC IN
61	FGIN	I	FG input from motor driver (IC701)
62	–	–	} Not used this set (Fixed at "L")
63	–	–	
64	INTSW	I	Not used this set (Fixed at "H")
65	–	–	Not used this set (Fixed at "L")
66	JACK DET	I	Not used this set (Fixed at "H")
67	–	–	Not used this set (Fixed at "L")
68	MICDET	I	Not used this set (Fixed at "H")
69	XLAT	O	Latch output
70	XLCDPON	O	Power control output to LCD driver "L": on
71	–	–	} Not used (OPEN)
72	–	–	
73	CHG CONT	O	Charge current control output
74	XLATRF	O	Latch output to RF amplifier (IC501)
75	DOSY	I	Not used this set (Fixed at "L")
76	TCOUNT	I	Traverse count signal input
77	SDI1	I	Serial data input
78	SDO1	O	Serial data output
79	SCK1	O	Serial clock output
80	SQSY	I	SUB-Q/ADIP SYNC input
81	–	–	Not used (OPEN)
82	FBP	O	Focus bias voltage control signal output
83	REFLECT	O	CD/MO discrimination switch
84	TEX	–	Not used this set (Fixed at "L")
85	XT	–	Not used (OPEN)
86	VSS	–	GND Terminal
87	VDD	–	Power supply terminal
88	NC	–	Not used this set (Fixed at "H")
89	DEEMP	O	De-emphasis control signal output



Pin No.	Pin Name	I/O	Function
90	–	–	} Not used (OPEN)
91	–	–	
92	–	–	
93	AMUTE	O	Analog mute control signal output
94	–	–	Not used (OPEN)
95	CSHP	O	} Chip select output
96	CSNV	O	
97	SCK2	O	Serial clock output
98	–	–	} Not used (OPEN)
99	–	–	
100	CHG	O	Charge control signal output “H”: charge

\* On I/O section  
(A): Analog output



## SECTION 6 EXPLODED VIEWS

## NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts Example:  
KNOB, BALANCE (WHITE) . . . (RED)

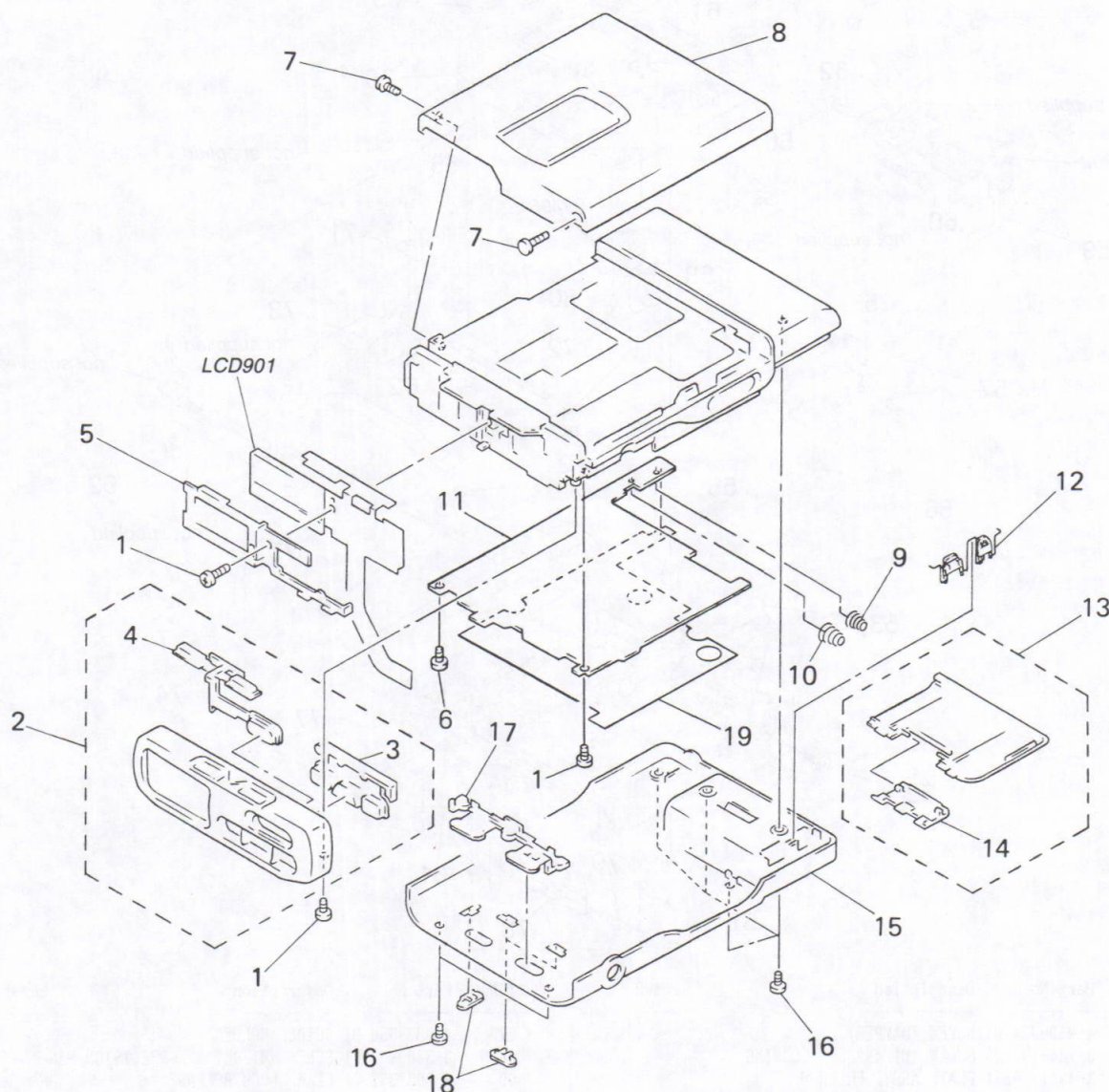
↑                      ↑  
 Parts Color      Cabinet's Color

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories and packing materials are given in the last of the electrical parts list.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety.  
Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité.  
Ne les remplacer que par une pièce portant le numéro spécifié.

### (1) CABINET SECTION-1



Ref. No.	Part No.	Description	Remark
1	3-375-114-21	SCREW (M1.7X2.5)	
2	X-4947-299-1	ORNAMENT ASSY, CONTROL	
3	4-983-301-01	BUTTON (CONTROL) (◀, ▶, ⏻)	
4	4-983-305-01	BUTTON (VOL) (-, +, ■)	
5	4-983-293-01	HOLDER (LCD)	
6	3-335-797-01	SCREW (M1.4X2), TOOTHED LOCK	
7	3-349-825-82	SCREW, PRECISION	
8	X-4947-297-1	LID ASSY, UPPER	
9	4-983-306-01	SPRING (A), BATTERY	
10	4-983-307-01	SPRING (B), BATTERY	

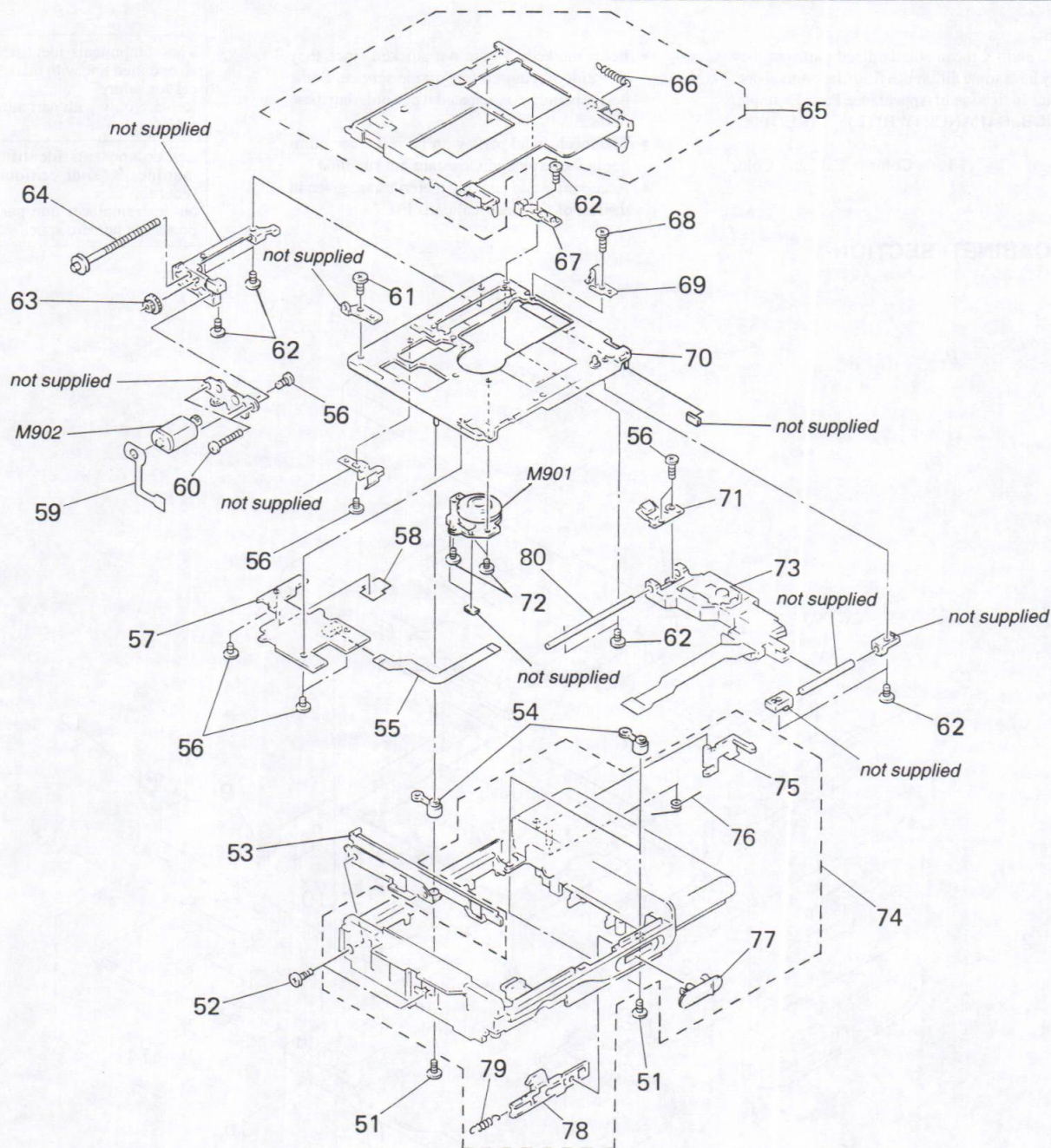
Ref. No.	Part No.	Description	Remark
11	A-3293-125-A	MAIN BOARD, COMPLETE	
12	X-4947-302-1	TERMINAL ASSY, BATTERY	
13	X-4947-300-1	LID ASSY, BATTERY CASE	
14	4-972-499-21	HINGE (BATTERY CASE LID)	
15	4-983-300-01	CASE (REAR)	
16	3-355-424-81	SCREW, TAPPING	
17	4-983-289-01	BUTTON (MODE)	
18	4-983-310-01	KNOB (DOLBY)	
19	4-986-032-01	SHEET, SHIELD	
LCD901	1-801-322-11	LCD MODULE	



## (2) CABINET SECTION-2, OPTICAL PICK-UP SECTION (KMS-240A/J2N)

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



Ref. No.	Part No.	Description	Remark	Ref. No.	Part No.	Description	Remark
51	4-963-924-01	SCREW (DAMPER)		* 67	4-983-356-01	GUIDE, HOLDER	
52	3-704-197-23	SCREW (M1.4X2.5), LOCKING		68	3-348-160-01	SCREW (M1.4X1.3), PRECISION PAN	
53	X-4947-298-1	PLATE ASSY, FULCRUM		69	4-983-357-01	CLAW, LOCK RELEASE	
54	4-983-311-01	DAMPER		* 70	X-4947-311-1	CHASSIS ASSY	
55	1-661-645-11	MD FLEXIBLE BOARD		71	4-963-914-02	RACK (INSERTER)	
56	3-366-890-11	SCREW (M1.4)		72	4-955-841-01	SCREW	
57	A-3293-124-A	CLV BOARD, COMPLETE		$\Delta$ 73	8-583-026-01	OPTICAL PICK-UP KMS-240A/J2N	
58	1-651-017-11	CLV FLEXIBLE BOARD		74	X-4947-296-1	CABINET ASSY	
59	1-651-018-11	SLED FLEXIBLE BOARD		75	4-983-302-01	LEVER (DETECTION)	
60	4-964-537-01	SCREW (M1.4X4.5), TAPPING		76	4-983-303-01	SPRING (DETECTION), TORSION	
61	4-964-538-01	SCREW (M1.4X2)		77	4-983-290-01	KNOB (OPEN)	
62	3-704-197-33	SCREW (M1.4X3.0), LOCKING		78	4-983-291-01	ARM, LOCK	
63	4-972-548-01	GEAR (BH)		79	4-983-297-01	SPRING (OPEN), TENSION	
64	A-3303-501-A	SCREW BLOCK ASSY, LEAD		80	4-963-887-01	SHAFT (GUIDE A)	
65	X-4947-312-1	HOLDER ASSY		M901	1-698-542-11	MOTOR (SPINDLE)	
66	4-983-358-01	SPRING, TENSION		M902	A-3303-502-A	MOTOR BLOCK ASSY, SLED	



## SECTION 7 ELECTRICAL PARTS LIST

CLV

MAIN

## NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS  
All resistors are in ohms.  
METAL: Metal-film resistor.  
METAL OXIDE: Metal oxide-film resistor.  
F: nonflammable

- Items marked "\*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

## ● SEMICONDUCTORS

In each case, u:  $\mu$ , for example:uA.:  $\mu$ A. uPA.:  $\mu$ PA.uPB.:  $\mu$ PB. uPC.:  $\mu$ PC. uPD.:  $\mu$ PD.

## ● CAPACITORS

uF:  $\mu$ F

## ● COILS

uH:  $\mu$ H

When indicating parts by reference number, please include the board.

The components identified by mark  $\Delta$  or dotted line with mark  $\Delta$  are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque  $\Delta$  sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description	Remark
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A-3293-124-A CLV BOARD, COMPLETE

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1-651-017-11 CLV FLEXIBLE BOARD

## &lt; CAPACITOR &gt;

C701	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C702	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C703	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C704	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C705	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V

C706	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C707	1-162-967-11	CERAMIC CHIP	0.0033uF	10%	50V
C709	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C710	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C711	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V

C712	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
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## &lt; CONNECTOR &gt;

CN701	1-573-349-21	CONNECTOR, FFC/FPC 9P
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## &lt; IC &gt;

IC701	8-759-335-44	IC CXA8048N
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## &lt; TRANSISTOR &gt;

Q703	8-729-427-83	TRANSISTOR XP6501
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## &lt; RESISTOR &gt;

R701	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R702	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R703	1-216-815-11	METAL CHIP	330	5%	1/16W
R704	1-217-671-11	METAL CHIP	1	5%	1/10W
R705	1-217-671-11	METAL CHIP	1	5%	1/10W
R706	1-216-833-11	METAL CHIP	10K	5%	1/16W
R708	1-216-864-11	METAL CHIP	0	5%	1/16W
R711	1-216-864-11	METAL CHIP	0	5%	1/16W

Ref. No.	Part No.	Description	Remark
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## &lt; SWITCH &gt;

S703	1-692-377-31	SWITCH, PUSH (1 KEY) (REFLECT)
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S705	1-572-467-41	SWITCH, PUSH (1 KEY) (INLIMIT)
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A-3293-125-A MAIN BOARD, COMPLETE

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4-017-441-01 CUSHION (B)

## &lt; CAPACITOR &gt;

C101	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C117	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C124	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C125	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C133	1-162-927-11	CERAMIC CHIP	100PF	5%	50V

C201	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C217	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C224	1-165-128-11	CERAMIC CHIP	0.22uF		16V
C225	1-135-179-21	TANTAL. CHIP	2.2uF	20%	16V
C233	1-162-927-11	CERAMIC CHIP	100PF	5%	50V

C301	1-165-321-11	CERAMIC CHIP	0.68uF	10%	16V
C314	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C315	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C320	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C334	1-107-815-11	TANTAL. CHIP	2.2uF	20%	4V

C335	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C336	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V
C337	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C338	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C339	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V

C340	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C341	1-165-321-11	CERAMIC CHIP	0.68uF	10%	16V
C342	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C343	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C345	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V

C346	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
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## MAIN

Ref. No.	Part No.	Description	Remark			Ref. No.	Part No.	Description	Remark		
C347	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	C580	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C352	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C601	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V
C361	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C602	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C370	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C603	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C373	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C605	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C504	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C606	1-162-913-11	CERAMIC CHIP	8PF	0.5PF	50V
C505	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C607	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C507	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C608	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C508	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V	C609	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C509	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C801	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C510	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	C802	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C511	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	C803	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C512	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C804	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C513	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C805	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C514	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	C806	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C517	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C807	1-113-682-11	TANTAL. CHIP	33uF	20%	10V
C518	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	C808	1-104-908-11	TANTAL. CHIP	47uF	20%	4V
C520	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C809	1-164-346-11	CERAMIC CHIP	1uF		16V
C523	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	C810	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C524	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C812	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C525	1-109-982-11	CERAMIC CHIP	1uF	10%	10V	C815	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C526	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	C818	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C527	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	C819	1-110-563-11	CERAMIC CHIP	0.068uF	10%	16V
C529	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C823	1-135-181-21	TANTALUM CHIP	4.7uF	20%	6.3V
C534	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	C825	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C536	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	C902	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V
C537	1-164-245-11	CERAMIC CHIP	0.015uF	10%	25V	C903	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C538	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	C904	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C539	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	C905	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C540	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C906	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C541	1-104-852-11	TANTAL. CHIP	22uF	20%	6.3V	C907	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C542	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	C908	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C544	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C909	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C545	1-113-682-11	TANTAL. CHIP	33uF	20%	10V	C910	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C546	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V	C911	1-128-394-11	ELECT	220uF	20%	10V
C547	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V	C913	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C548	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V	C921	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C549	1-113-682-11	TANTAL. CHIP	33uF	20%	10V	C922	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C550	1-113-682-11	TANTAL. CHIP	33uF	20%	10V	C923	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C551	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V	C924	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C552	1-104-912-11	TANTAL. CHIP	3.3uF	20%	16V	C925	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C553	1-113-682-11	TANTAL. CHIP	33uF	20%	10V	C926	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C554	1-104-913-11	TANTAL. CHIP	10uF	20%	16V	C927	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C555	1-107-682-11	CERAMIC CHIP	1uF	10%	16V	C928	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C570	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C929	1-107-833-11	ELECT CHIP	33uF	20%	6.3V
C571	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C930	1-162-957-11	CERAMIC CHIP	220PF	5%	50V
C572	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	C931	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C575	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V						
C576	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V						



Ref. No.	Part No.	Description	Remark
< CONNECTOR >			
CN501	1-573-929-11	CONNECTOR, FFC/FPC (ZIF) 20P	
CN502	1-573-918-11	CONNECTOR, FFC/FPC (ZIF) 9P	
CN801	1-573-354-11	CONNECTOR, FFC/FPC 14P	
< DIODE >			
D309	8-719-404-49	DIODE MA111	
D311	8-719-017-58	DIODE MA8068	
D502	8-719-421-27	DIODE MA728	
D601	8-719-420-51	DIODE MA729	
D801	8-719-017-58	DIODE MA8068	
D802	8-719-420-51	DIODE MA729	
D803	8-719-017-58	DIODE MA8068	
D804	8-719-421-27	DIODE MA728	
D807	8-719-421-27	DIODE MA728	
D901	8-719-974-51	DIODE SB20-03P	
D905	8-719-974-51	DIODE SB20-03P	
D921	8-719-801-78	DIODE 1SS184	
D922	8-719-801-78	DIODE 1SS184	
< FERRITE BEAD >			
FB503	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB504	1-414-228-11	INDUCTOR, FERRITE BEAD	
FB505	1-414-228-11	INDUCTOR, FERRITE BEAD	
< IC >			
IC304	8-759-425-18	IC CS4330-KS-H	
IC308	8-759-166-95	IC LA4805V-TLM	
IC309	8-759-173-00	IC XC61AN1102MR	
IC314	8-759-332-22	IC DS1802-TE2	
IC501	8-752-072-68	IC CXA1981AR	
IC503	8-752-375-82	IC CXD2535BR-1	
IC505	8-759-179-60	IC MPC17A38VMEL	
IC508	8-759-710-79	IC NJM2107F	
IC601	8-752-371-17	IC CXD2536R	
IC602	8-759-438-26	IC ESP10CC (M)	
IC603	8-759-427-61	IC XC6383A311MR	
IC801	8-752-865-60	IC CXP81960M-620R	
IC802	8-759-343-90	IC RS5RJ29261	
IC803	8-759-425-16	IC AK93C45LV	
IC806	8-759-710-79	IC NJM2107F	
IC901	8-759-981-69	IC LM2904M	
IC921	8-759-331-73	IC MB3800PNF	
< JACK >			
J302	1-565-287-71	JACK (PHONES)	
J901	1-778-153-11	JACK, DC (POLARITY UNIFIED TYPE)	(DC IN 4.5V)

Ref. No.	Part No.	Description	Remark
< COIL >			
L303	1-414-398-11	INDUCTOR 10uH	
L304	1-414-398-11	INDUCTOR 10uH	
L501	1-414-398-11	INDUCTOR 10uH	
L503	1-414-402-11	INDUCTOR 47uH	
L505	1-412-028-11	INDUCTOR CHIP 4.7uH	
L507	1-414-402-11	INDUCTOR 47uH	
L508	1-414-410-21	INDUCTOR 10uH	
L509	1-414-402-11	INDUCTOR 47uH	
L510	1-414-410-21	INDUCTOR 10uH	
L511	1-412-034-11	INDUCTOR CHIP 330uH	
L515	1-414-402-11	INDUCTOR 47uH	
L516	1-414-402-11	INDUCTOR 47uH	
L601	1-414-398-11	INDUCTOR 10uH	
L602	1-414-402-11	INDUCTOR 47uH	
L801	1-414-402-11	INDUCTOR 47uH	
L921	1-411-197-11	COIL, DD CONVERTER	
L922	1-414-410-21	INDUCTOR 10uH	
< LINE FILTER >			
LF301	1-409-755-11	FILTER, CHIP EMI (COMMON MODE)	
LF303	1-403-601-21	FILTER, COMMON MODE	
LF901	1-411-312-11	FILTER, COMMON MODE	
< TRANSISTOR >			
Q312	8-729-028-91	TRANSISTOR DTA144EUA-T106	
Q502	8-729-422-39	TRANSISTOR XN4404	
Q504	8-729-019-25	TRANSISTOR 2SK1467-TD	
Q510	8-729-019-25	TRANSISTOR 2SK1467-TD	
Q801	8-729-028-91	TRANSISTOR DTA144EUA-T106	
Q901	8-729-028-83	TRANSISTOR DTA124EUA-T106	
Q902	8-729-230-63	TRANSISTOR 2SC4116-YG	
Q903	8-729-029-06	TRANSISTOR DTC124EUA-T106	
Q904	8-729-922-34	TRANSISTOR 2SD1758F5-QR	
Q905	8-729-031-34	TRANSISTOR 2SK2034	
Q908	8-729-029-06	TRANSISTOR DTC124EUA-T106	
Q911	8-729-031-34	TRANSISTOR 2SK2034	
Q921	8-729-031-31	TRANSISTOR 2SD2402	
Q922	8-729-031-29	TRANSISTOR 2SA1641S	
Q923	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
< RESISTOR >			
R119	1-216-789-11	METAL CHIP 2.2 5% 1/16W	
R120	1-218-855-11	METAL CHIP 2.2K 0.50% 1/16W	
R122	1-216-819-11	METAL CHIP 680 5% 1/16W	
R136	1-218-867-11	METAL CHIP 6.8K 0.50% 1/16W	
R141	1-216-833-11	METAL CHIP 10K 5% 1/16W	



## MAIN

Ref. No.	Part No.	Description	Remark		
R219	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R220	1-218-855-11	METAL CHIP	2.2K	0.50%	1/16W
R222	1-216-819-11	METAL CHIP	680	5%	1/16W
R236	1-218-867-11	METAL CHIP	6.8K	0.50%	1/16W
R241	1-216-833-11	METAL CHIP	10K	5%	1/16W
R360	1-216-837-11	METAL CHIP	22K	5%	1/16W
R361	1-216-839-11	METAL CHIP	33K	5%	1/16W
R362	1-216-839-11	METAL CHIP	33K	5%	1/16W
R364	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R365	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R366	1-216-833-11	METAL CHIP	10K	5%	1/16W
R367	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R368	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R374	1-216-845-11	METAL CHIP	100K	5%	1/16W
R501	1-216-821-11	METAL CHIP	1K	5%	1/16W
R502	1-216-837-11	METAL CHIP	22K	5%	1/16W
R504	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R505	1-216-789-11	METAL CHIP	2.2	5%	1/16W
R506	1-216-811-11	METAL CHIP	150	5%	1/16W
R507	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R508	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R509	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R510	1-216-853-11	METAL CHIP	470K	5%	1/16W
R512	1-216-809-11	METAL CHIP	100	5%	1/16W
R513	1-216-837-11	METAL CHIP	22K	5%	1/16W
R514	1-216-835-11	METAL CHIP	15K	5%	1/16W
R520	1-216-833-11	METAL CHIP	10K	5%	1/16W
R521	1-216-845-11	METAL CHIP	100K	5%	1/16W
R522	1-216-857-11	METAL CHIP	1M	5%	1/16W
R523	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R524	1-216-821-11	METAL CHIP	1K	5%	1/16W
R525	1-216-821-11	METAL CHIP	1K	5%	1/16W
R528	1-216-831-11	METAL CHIP	6.8K	5%	1/16W
R529	1-216-833-11	METAL CHIP	10K	5%	1/16W
R530	1-216-845-11	METAL CHIP	100K	5%	1/16W
R536	1-216-859-11	METAL GLAZE	1.5M	5%	1/16W
R537	1-216-817-11	METAL CHIP	470	5%	1/16W
R538	1-216-833-11	METAL CHIP	10K	5%	1/16W
R539	1-216-864-11	METAL CHIP	0	5%	1/16W
R540	1-216-864-11	METAL CHIP	0	5%	1/16W
R550	1-216-839-11	METAL CHIP	33K	5%	1/16W
R551	1-216-839-11	METAL CHIP	33K	5%	1/16W
R552	1-216-839-11	METAL CHIP	33K	5%	1/16W
R553	1-216-839-11	METAL CHIP	33K	5%	1/16W
R554	1-216-839-11	METAL CHIP	33K	5%	1/16W
R555	1-216-839-11	METAL CHIP	33K	5%	1/16W
R556	1-216-841-11	METAL CHIP	47K	5%	1/16W
R557	1-216-821-11	METAL CHIP	1K	5%	1/16W
R558	1-216-821-11	METAL CHIP	1K	5%	1/16W

Ref. No.	Part No.	Description	Remark		
R559	1-216-811-11	METAL CHIP	150	5%	1/16W
R560	1-216-845-11	METAL CHIP	100K	5%	1/16W
R596	1-216-864-11	METAL CHIP	0	5%	1/16W
R597	1-216-864-11	METAL CHIP	0	5%	1/16W
R598	1-216-864-11	METAL CHIP	0	5%	1/16W
R601	1-216-819-11	METAL CHIP	680	5%	1/16W
R602	1-216-819-11	METAL CHIP	680	5%	1/16W
R603	1-216-819-11	METAL CHIP	680	5%	1/16W
R604	1-216-819-11	METAL CHIP	680	5%	1/16W
R605	1-216-833-11	METAL CHIP	10K	5%	1/16W
R606	1-216-833-11	METAL CHIP	10K	5%	1/16W
R607	1-216-833-11	METAL CHIP	10K	5%	1/16W
R608	1-216-833-11	METAL CHIP	10K	5%	1/16W
R801	1-216-833-11	METAL CHIP	10K	5%	1/16W
R802	1-216-851-11	METAL CHIP	330K	5%	1/16W
R803	1-216-857-11	METAL CHIP	1M	5%	1/16W
R804	1-216-857-11	METAL CHIP	1M	5%	1/16W
R805	1-216-857-11	METAL CHIP	1M	5%	1/16W
R806	1-216-857-11	METAL CHIP	1M	5%	1/16W
R807	1-216-857-11	METAL CHIP	1M	5%	1/16W
R808	1-216-839-11	METAL CHIP	33K	5%	1/16W
R809	1-216-837-11	METAL CHIP	22K	5%	1/16W
R811	1-216-837-11	METAL CHIP	22K	5%	1/16W
R813	1-216-845-11	METAL CHIP	100K	5%	1/16W
R815	1-216-851-11	METAL CHIP	330K	5%	1/16W
R816	1-216-864-11	METAL CHIP	0	5%	1/16W
R817	1-216-851-11	METAL CHIP	330K	5%	1/16W
R819	1-216-851-11	METAL CHIP	330K	5%	1/16W
R820	1-216-851-11	METAL CHIP	330K	5%	1/16W
R821	1-216-851-11	METAL CHIP	330K	5%	1/16W
R822	1-218-887-11	METAL CHIP	47K	0.50%	1/16W
R823	1-218-887-11	METAL CHIP	47K	0.50%	1/16W
R824	1-216-851-11	METAL CHIP	330K	5%	1/16W
R827	1-216-864-11	METAL CHIP	0	5%	1/16W
R828	1-216-845-11	METAL CHIP	100K	5%	1/16W
R829	1-216-864-11	METAL CHIP	0	5%	1/16W
R831	1-216-864-11	METAL CHIP	0	5%	1/16W
R834	1-216-857-11	METAL CHIP	1M	5%	1/16W
R835	1-216-845-11	METAL CHIP	100K	5%	1/16W
R841	1-218-867-11	METAL CHIP	6.8K	0.50%	1/16W
R842	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R843	1-218-875-11	METAL CHIP	15K	0.50%	1/16W
R844	1-218-883-11	METAL CHIP	33K	0.50%	1/16W
R845	1-218-887-11	METAL CHIP	47K	0.50%	1/16W
R846	1-216-863-11	METAL GLAZE	3.3M	5%	1/16W
R852	1-218-899-11	METAL CHIP	150K	0.50%	1/16W
R854	1-218-871-11	METAL CHIP	10K	0.50%	1/16W
R856	1-216-821-11	METAL CHIP	1K	5%	1/16W



Ref. No.	Part No.	Description	Remark
R857	1-218-879-11	METAL CHIP	22K 0.50% 1/16W
R863	1-216-839-11	METAL CHIP	33K 5% 1/16W
R864	1-216-833-11	METAL CHIP	10K 5% 1/16W
R867	1-216-864-11	METAL CHIP	0 5% 1/16W
R868	1-216-864-11	METAL CHIP	0 5% 1/16W
R901	1-218-911-11	METAL CHIP	470K 0.50% 1/16W
R902	1-218-903-11	METAL CHIP	220K 0.50% 1/16W
R903	1-216-864-11	METAL CHIP	0 5% 1/16W
R904	1-218-867-11	METAL CHIP	6.8K 0.50% 1/16W
R905	1-218-871-11	METAL CHIP	10K 0.50% 1/16W
R906	1-218-899-11	METAL CHIP	150K 0.50% 1/16W
R907	1-218-899-11	METAL CHIP	150K 0.50% 1/16W
R908	1-218-891-11	METAL CHIP	68K 0.50% 1/16W
R909	1-218-887-11	METAL CHIP	47K 0.50% 1/16W
R910	1-216-821-11	METAL CHIP	1K 5% 1/16W
R911	1-216-845-11	METAL CHIP	100K 5% 1/16W
R912	1-218-915-11	METAL CHIP	680K 0.50% 1/16W
R913	1-218-911-11	METAL CHIP	470K 0.50% 1/16W
R914	1-218-911-11	METAL CHIP	470K 0.50% 1/16W
R915	1-218-907-11	METAL CHIP	330K 0.50% 1/16W
R916	1-217-806-11	METAL GLAZE	1 5% 1/8W
R917	1-217-806-11	METAL GLAZE	1 5% 1/8W
R918	1-216-857-11	METAL CHIP	1M 5% 1/16W
R919	1-218-915-11	METAL CHIP	680K 0.50% 1/16W
R920	1-218-911-11	METAL CHIP	470K 0.50% 1/16W
R921	1-216-817-11	METAL CHIP	470 5% 1/16W
R922	1-216-827-11	METAL CHIP	3.3K 5% 1/16W
R923	1-216-819-11	METAL CHIP	680 5% 1/16W
R924	1-216-819-11	METAL CHIP	680 5% 1/16W
R925	1-216-825-11	METAL CHIP	2.2K 5% 1/16W
R926	1-216-797-11	METAL CHIP	10 5% 1/16W
R927	1-218-883-11	METAL CHIP	33K 0.50% 1/16W
R928	1-218-863-11	METAL CHIP	4.7K 0.50% 1/16W
R932	1-216-845-11	METAL CHIP	100K 5% 1/16W
R934	1-216-845-11	METAL CHIP	100K 5% 1/16W
R935	1-216-845-11	METAL CHIP	100K 5% 1/16W
< VARIABLE RESISTOR >			
RV921	1-238-089-11	RES. ADJ. CERMET	4.7K
< SWITCH >			
S302	1-762-736-21	SWITCH, SLIDE (MEGA BASS)	
S811	1-572-473-11	SWITCH, TACTIL (PLAY MODE)	
S812	1-572-473-11	SWITCH, TACTIL (DISPLAY)	
S817	1-762-342-11	SWITCH, PUSH (1 KEY) (OPEN)	
S818	1-762-371-21	SWITCH, SLIDE (HOLD)	
S831	1-762-371-21	SWITCH, SLIDE (AVLS)	
S902	1-762-621-21	SWITCH, PUSH (1 KEY) (BATTERY DET)	

Ref. No.	Part No.	Description	Remark
< THERMISTOR (POSITIVE) >			
THP901	1-810-792-11	SWITCH, POLYETHYLENE	
< VIBRATOR >			
X601	1-760-173-11	VIBRATOR, CRYSTAL (45MHz)	
X801	1-760-174-11	VIBRATOR, CERAMIC (12MHz)	
*****			
MISCELLANEOUS			
*****			
55	1-661-645-11	MD FLEXIBLE BOARD	
58	1-651-017-11	CLV FLEXIBLE BOARD	
59	1-651-018-11	SLED FLEXIBLE BOARD	
△73	8-583-026-01	OPTICAL PICK-UP KMS-240A/J2N	
LCD901	1-801-322-11	LCD MODULE	
M901	1-698-542-11	MOTOR (SPINDLE)	
M902	A-3303-502-A	MOTOR BLOCK ASSY, SLED	
*****			
ACCESSORIES & PACKING MATERIALS			
*****			
△	1-467-007-21	ADAPTOR, AC (AC-E455) (Australian)	
△	1-467-009-11	ADAPTOR, AC (AC-E455) (Canadian)	
△	1-467-550-11	ADAPTOR, AC (AC-E455A) (E)	
△	1-473-115-11	ADAPTOR, AC (AC-E455D) (UK)	
△	1-473-116-31	ADAPTOR, AC (AC-E455D) (AEP)	
△	1-569-007-11	ADAPTOR, CONVERSION 2P (E)	
	3-856-519-11	MANUAL, INSTRUCTION (ENGLISH, FRENCH) (Canadian, AEP, UK, E, Australian)	
	3-856-519-21	MANUAL, INSTRUCTION (SPANISH, GERMAN) (AEP)	
	3-856-519-31	MANUAL, INSTRUCTION (SWEDISH, GERMAN) (AEP)	
	3-856-519-41	MANUAL, INSTRUCTION (PORTUGUESE) (AEP)	
	3-856-519-51	MANUAL, INSTRUCTION (ENGLISH) (US)	
	3-856-519-61	MANUAL, INSTRUCTION (CHINESE) (E)	
*	4-984-061-01	CASE, INDIVIDUAL	
	4-984-210-01	CASE, CARRYING	
	8-953-342-93	HEADPHONE MDR-24/K1 SET (US)	
	8-953-538-91	HEADPHONE MDR-E741/K1 SET (Canadian, AEP, UK, E, Australian)	
	X-3329-657-1	ATTACHMENT (Canadian, AEP, UK, E, Australian)	

The components identified by mark △ or dotted line with mark △ are critical for safety. Replace only with part number specified.

Les composants identifiés par une marque △ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



